AMERICAN RIFLEMAN

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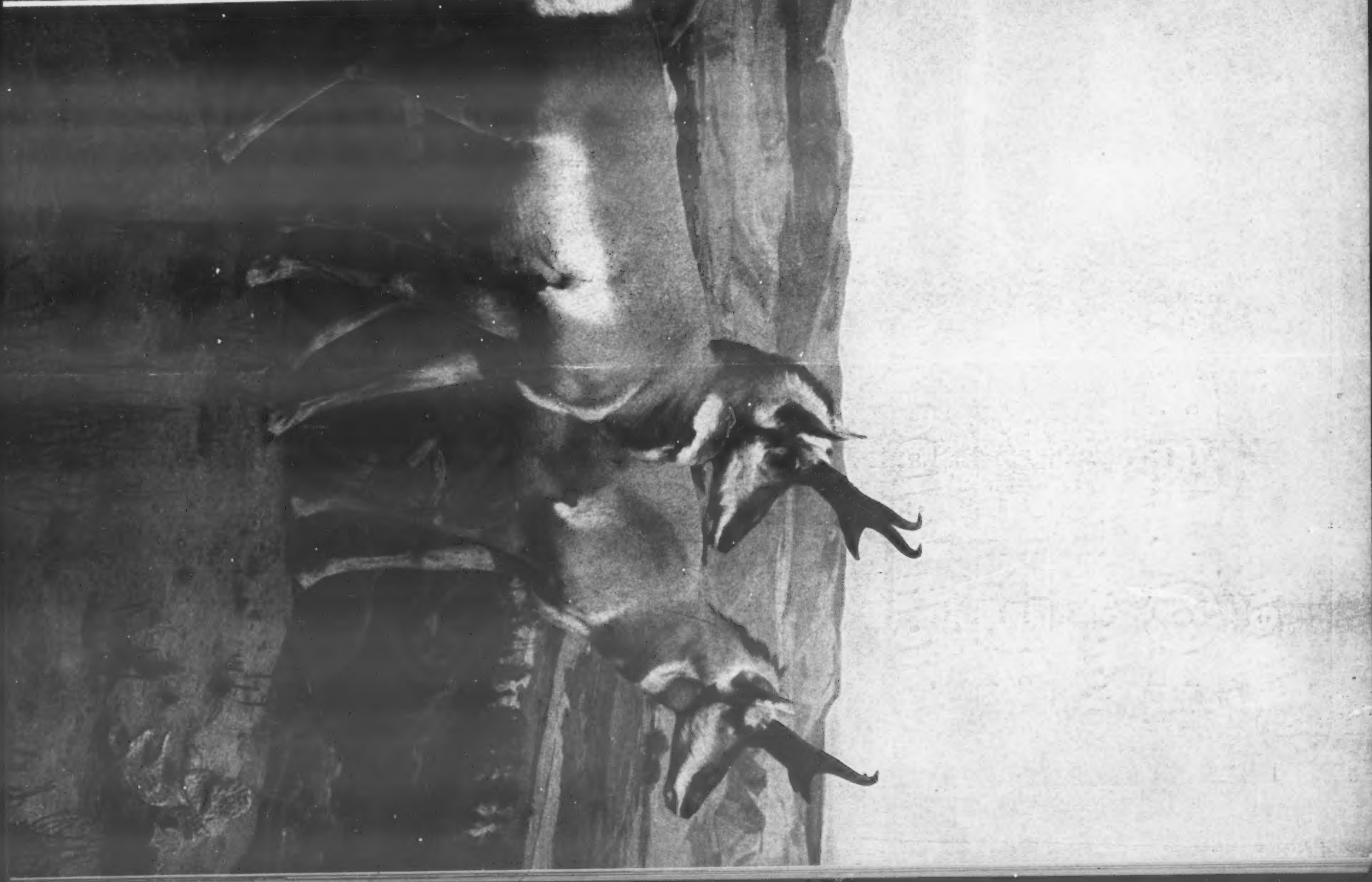

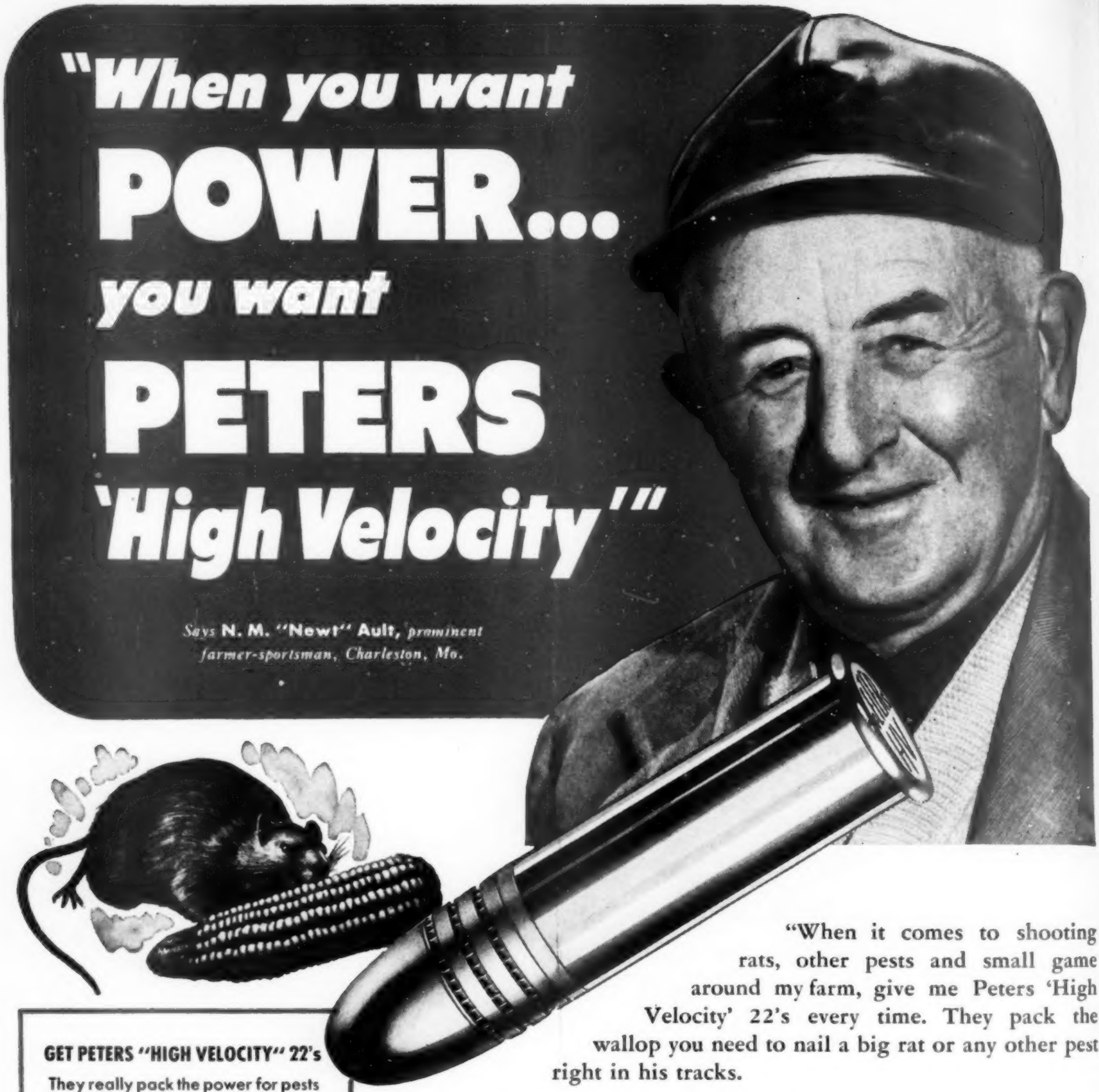

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Says **N. M. "Newt" Ault,** *prominent farmer-sportsman, Charleston, Mo.*

"When it comes to shooting rats, other pests and small game around my farm, give me Peters 'High Velocity' 22's every time. They pack the wallop you need to nail a big rat or any other pest right in his tracks.

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Thank you, "Newt." It's a fact, there's no more powerful ammunition in the world than Peters "High Velocity."

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They really pack the power for pests and small game. They've got everything . . . from strong brass cases and "Rustless" non-corrosive priming that gives you split-second ignition to properly balanced and accurate bullets.

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PETERS HIGH VELOCITY 30-06 SPRINGFIELD
INNER-BELTED
30-06
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HIGH VELOCITY

PETERS *packs the* **POWER**

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The championships are won by shooters who have an "edge" in performance. One "edge" which marks most winners of the big championships is in their insistence on the superior performance of the Bausch & Lomb Spotting Scope. They want the *advanced Bausch & Lomb Optical System*—full 60mm objective aperture . . . precision Bausch & Lomb optics, with Balcote anti-reflection surfacing for increased light transmission, improved contrast, positive spotting of doubles in the black, even in poor light. They want the *Long Eye Distance* of B&L design, that permits easy use and no interference with glasses.

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Purchase of the B&L 60mm Scope may be an important step toward championship performance *for you.*

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(tripod not included)

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OPTICAL COMPANY B&L ROCHESTER 2, N. Y.

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TAILOR MADE FOR HIGH-POWER BOLT ACTIONS AND SAVAGE 99

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AMERICAN RIFLEMAN

The Rifle 1885-1888
Shooting and Fishing 1888-1906
Arms and the Man 1906-1923

Official Journal of the NATIONAL RIFLE ASSOCIATION OF AMERICA
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COVER

The pronghorn antelope in this group in New York's American Museum of Natural History are depicted as they fed on the prairies which made up much of Theodore Roosevelt's Elkhorn Ranch in the Dakotas. Said Roosevelt, in his "Hunting Trips of a Ranchman": "Of all kinds of hunting, the chase of the antelope is pre-eminently that requiring skill in the use of the rifle . . . "

AMERICAN RIFLEMAN

Published monthly by the NATIONAL RIFLE ASSOCIATION OF AMERICA, 1600 RHODE ISLAND AVENUE, WASHINGTON 6, D. C. Domestic Rates (North, South, and Central America) $4.00 a year, $7.00 for two years, $10 for three years; elsewhere add $.60 per year for foreign postage. Entered as second-class matter, April 1, 1908, at the post office at Washington, D. C., under act of March 3, 1879. Copyright, 1951, National Rifle Association of America. All rights reserved. For change of address, give both new and old address as the latter appears on address label. Not responsible for loss or damage to unsolicited manuscripts or photos.

Dave Bushnell says...

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FINEST BINOCULARS!

SAVE 52% AND MORE!

Yours for a Lifetime of Pleasure! Clearer...Sharper...at Lowest Cost!

WASHINGTON FLASH!

BINOCULARS WILL SOON BE SCARCE!

Washington, D. C.—All signs now indicate that binoculars will soon be difficult—if not impossible—to obtain *at any price!*

Remember how it was during the last war? Folks who owned binoculars were asked to loan them to the armed services or civilian defense organizations for the duration.

Owners probably will not now be asked to give them up; but if you want to own a pair of binoculars for your own enjoyment and use, you'd better order a pair NOW!

Priorities on Materials

The magnesium and aluminum used in binoculars are already high on priority lists of critical materials. And our skilled optical technicians may have to devote 100% of their time to Government work. So, don't delay—act now!

Well, back to the mailbag and more interesting questions, folks have asked me about binoculars . . .

Will They Freeze?

Q. "*Will the focusing mechanism of your binoculars freeze in sub-zero weather?*"

A. No! Bushnell's exclusive Al-Temp lubrication on all moving parts will withstand an extremely wide range of temperatures. BUSHNELL binoculars are widely used throughout Alaska, on the border of the Arctic Circle, often in weather 60° below zero.

Feather *vs.* Ordinary Weights

Q. "*What are the advantages of using magnesium for Bushnell binocular bodies?*"

A. (1) Great saving in weight. (2) Ease in carrying and lifting. (3) Speed in using. Moreover, BUSHNELL uses a special, non-corrosive, extra-durable magnesium alloy. Its extreme light weight and strength are immensely appreciated. They are a constant delight to hunters, and to all who must give binoculars rugged use for long periods of time.

Studying Snow Scenes

Q. "*What is the best type of binocular for long-range use over snow-covered landscapes?*"

A. Practically any size binocular is suitable. Precaution, however, should be taken when sun is shining brightly on the snow. To prevent excessive light and glare, use your smallest binocular (pocket models). However, if high power is needed, 8x30 or 9x35. If using larger binoculars (50mm. objective lenses) the same ideal viewing conditions may be obtained by reducing the light that reaches the eye, in either of two methods: (1) Attach filters such as those used by U. S. Armed Forces; (2) Mask out a portion of the objective lenses with a cardboard disc, or other gasket.

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Bushnell's 7 POWER, 35 MM.

COATED ALL-PURPOSE MODEL

The value that startled America. The most compact 7 x 35 available anywhere. Combines high resolving power with extreme lightness. (17 oz.) 4⅜" x 5¾". High illumination. Amazing clarity. Individual Focus. Bushnell Triple Testing in our own laboratory insures strain-free, relaxed, enjoyable viewing. Center Focus $4.00 extra.

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Only $45^50^*

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$54^50^*

- EXTREMELY ACCURATE COLOR-CORRECTED LENSES
- MAGNESIUM BODY—WORLD'S LIGHTEST
- ADVANCED OPTICAL DESIGN—NEEDLE SHARP VISION
- "X-CELLO" SEALED AGAINST MOISTURE

30 DAY FREE TRIAL!

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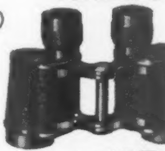
Very bright, sharp, steady image. Supremely smart, coated. All-chrome design. Rich, miniature-type all-leather case. Size: 2¼" x 4". Weight: 6½ ozs. Fit for a prince or fit for a princess!

SAVE 50% ...OR MORE!

$24^75^*

POPULAR 8 POWER, 30 MM.



What a value! Super-precise. Coated. Achromatic lenses. Amazingly-true color rendition. Sharp delineation. Compact. Easily carried in coat pocket. Field: 390 ft. Size: 4" x 5½". 18 oz. Add $4.00 for Central Focus.

TERRIFIC SAVING! $37^50^*

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$155 VALUE

$54^50^*

Aluminum Model $44^50^*

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- Registration Service—FREE!
- All orders shipped within 24 hrs. after receipt.
- Every pair of binoculars factory new!
- Air Mail Service anywhere U. S. A. $1.00 additional for pocket models. $2.50 for other sizes.

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TRIPLE TESTED

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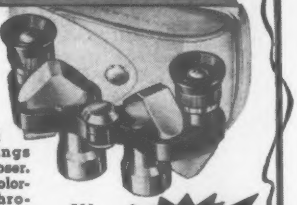
D. P. BUSHNELL & COMPANY
Dept. AR22, 43 E. Green, Pasadena 1, Calif.

Bushnell's NEW 6 POWER MODEL

PALM POCKET SIZE



World's handiest full 6 power coated Binocular. Brings objects 83% closer. Field: 370 ft. Color-corrected Achromatic Lenses. Originated in World War II for secret agents; practically undetectable. Beautiful 2-tone Chrome. 1,000 and 1 uses. Can be used anywhere. Weight: 5 ozs. Size: 2" x 3¾".

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- WORLD'S SMALLEST
- SHARP CLEAR VISION
- COLOR CORRECTED
- IRRESISTIBLE CHROME

Money back guarantee.

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8 Power, 40 MM. Exceptional Clarity.	$54.50*
9 Power, 35 MM. Extra Powerful.	$58.50*
12 Power, 50 MM. Long Range.	$69.50*
16 Power, 50 MM. Extreme Range.	$72.00*

*Add Usual 20% Federal Tax

Buy Now! Save! Present conditions may bring a substantial price increase very soon.

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☐ 7 x 35 Alum. ☐ 6 x 18 ☐ 8 x 40 ☐ 7 x 50 Alum.
☐ Individual Focus ☐ Central Focus ☐ ____________

All prices include Leather Case and Straps.

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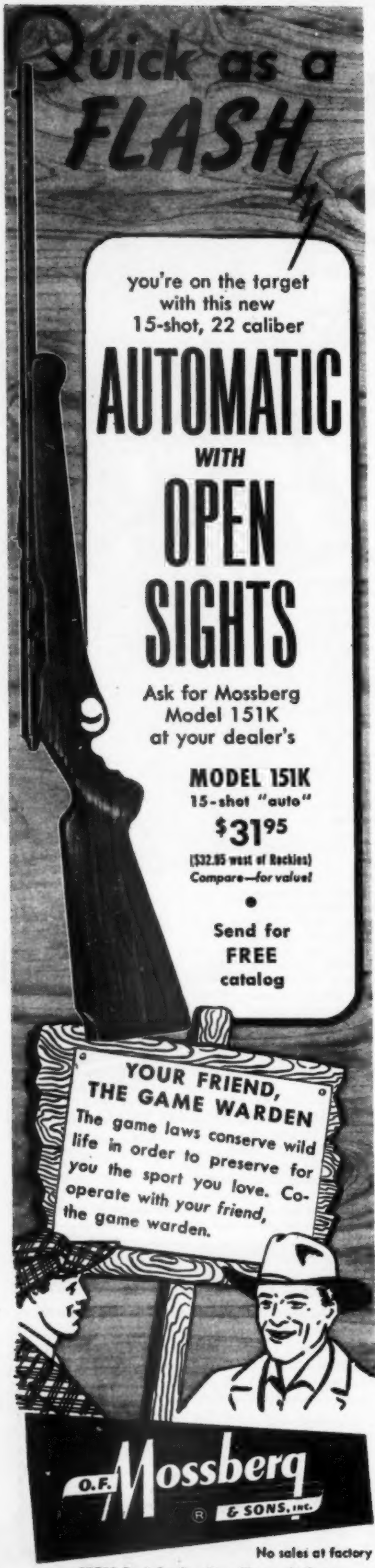
FREE GUIDE "How to Select Binoculars"

☐ Check here if you wish a copy.



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with this new
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AUTOMATIC
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SIGHTS

Ask for Mossberg
Model 151K
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$31.95
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THE GAME WARDEN
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O.F. Mossberg & SONS, INC.

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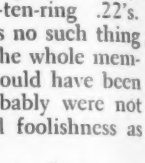
Incidentally

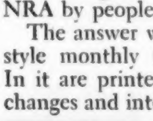
Back in the good old days you could buy a box of .22's for a quarter . . . and thirty-five cents would get you a box of extra-special, super-accurate, all-in-the-ten-ring .22's. Four bucks would buy a rifle, and there was no such thing as a shortage. Those were the days when the whole membership of the National Rifle Association could have been seated in New York's Yankee Stadium . . . and there probably were not two dozen members with real interests in such newfangled foolishness as wildcat cartridges or gun collecting.

Nobody has to be told what happened to those quarter boxes of ammunition, or the four-buck rifles that went with them . . . and today's NRA membership would crowd Yankee Stadium and have enough folks left over to fill Ebbetts Field, the Polo Grounds, Shibe Park, Madison Square Garden, the Cow Palace in San Francisco, and half of the Rose Bowl. As you would expect, the RIFLEMAN has sometimes been hard put to keep up with the expanding interests of all of those readers. Back in '35, a 48-page magazine was big enough most months to cover the interests of the gun clan. Today's RIFLEMAN averages exactly twice that many pages per month . . . and there still is not enough space to cover adequately all of the subjects which we feel should be included in an ideal issue.



The first fellow to feel the pinch, of course, was the target shooter. As interests expanded, less and less space was available for the scores and detailed reports of the target punchers. Not that anything had happened to the Clan of the Target Shooter. Far from it. Today he's as solid as ever a part of the NRA, as witness today's total of 41,000 classified rifle and pistol shooters . . . the seven thousand NRA-affiliated clubs on the books . . . the 650 registered rifle and pistol matches which made 1950 target shooting's biggest year. Nothing had happened to the target shooter except that he had been slowly outnumbered in the NRA by people who just liked guns.

The answer was fairly obvious—the publication of a separate, newspaper-style monthly for the Association's 40,000 or so active target shooters. In it are printed the scores, the detailed who-won-what accounts, the rule changes and interpretations so dear to the heart of the competitive shooter—and so necessary to the well-being of the competitive game if it is to continue its record-breaking popularity.



The *NRA Tournament News* (referred to as 'TN' around the office) will be nine months old the middle of this month. Most amazing in this day and age, the whole works is given away free. *Tournament News* goes automatically to every shooter as soon as he competes in a registered tournament, rifle or pistol, during the year.

As originally conceived, TN was to go to active tournament shooters, period. Since then, however, we've realized that TN is a splendid promotional medium for the whole shooting game, and should be given as wide circulation as possible. (Our guess is that even if you are not an active target shooter, you will be after you receive a few issues of *Tournament News.*) So . . . as of now, anyone, competitive shooter or not, can have twelve issues of TN postpaid and addressed with his very own name for one buck (east or west of the Rockies). Just send those dollar bills to Tournament News, 1600 Rhode Island Avenue, Washington 6, D. C.

There's a curious angle (and an unusual one, we think) to that dollar-a-year business. We'd be a lot happier giving the thing away. *Tournament News* was conceived as an adjunct of the competitive shooting game . . . an added service which the Association feels that it "owes" to its Most Substantial Citizens. We would much prefer to see increased TN circulation coming in via rifle and pistol tournament registrations than ones with a dollar bill attached. So . . . if there's no way out but that, send us a buck together with your name and address, and we'll see that you get twelve of our very best issues of *Tournament News.* But honestly, we'd be a lot happier if you'd just pick out a registered tournament this spring (the Coming Events column will be full of 'em) and get in for free that way!

JS

RIFLEMAN WORDS • • • •

A lexicon for shooters, explaining the meanings of unfamiliar terms used in articles in this issue.

FALLING-BLOCK ACTION—A type of single-shot action in which the breechblock drops below the chamber, at a right angle to the barrel, with operation of an external lever. On some rifles the lever also cocks the hammer.

FIRE FORM—To alter the shoulder angle or to increase diameter of the forward body of a cartridge case by firing mild loads in a chamber which is cut for a similar cartridge of equal caliber and of same case head diameter. Cases for so-called improved cartridges and wildcats also can be obtained for reloading by first firing the standard factory loads from which they are made in the chamber for the improved load or for the wildcat.

FLAT TRAJECTORY—A term used to indicate very little curvature in the flight of a bullet from muzzle to point of impact. When velocity is high, trajectory is comparatively flat though there is no such thing as a perfectly flat trajectory.

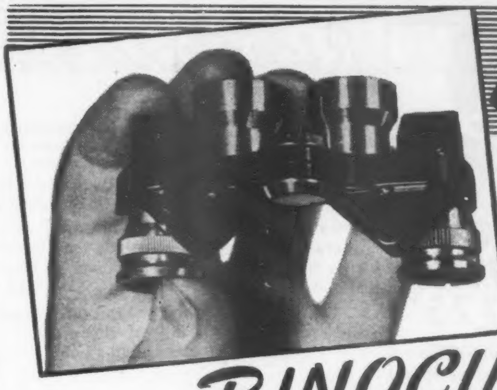
FORESTOCK—That portion of a rifle stock forward of the trigger guard. On single-shot rifles the forestock is separate from the buttstock, while on most other arms it is of the same piece as the butt.

FREE RIFLE—A type of rifle used in International and Olympic competitive shooting. No limitation of barrel length, caliber, or type of stock is placed upon the arm, though it must be fitted and used with metallic sights only. The name free rifle has come to mean a heavily stocked rifle, with palm rest on the fore-end, a prong buttplate, and a set trigger which is adapted for shooting offhand with a minimum of physical effort. There is a weight limitation on free rifles in Olympic and International competition.

FRONT SIGHT RAMP—A piece of metal on top of a barrel near the muzzle on which the front sight is mounted.

PALM REST—A projection on the forearm of a free rifle, with a shaped knob on the end to fit the half-closed hand, that a shooter grasps to support the rifle in offhand shooting. The palm rest can be adjusted for height, and moved along the forestock, or pivoted toward the butt or toward the muzzle. It allows the shooter to support the rifle more steadily than he can with a conventional stock.

PRONG BUTTPLATE—A buttplate for use on a free rifle which has a prong projecting from the toe or from the toe and from the heel. The prongs aid in maintaining the butt of the rifle in fixed position against the shoulder, the prong which fits under the armpit serving to balance the rifle on the fulcrum afforded by the palm rest.



ACTUAL PHOTO

6 POWER PRISM

BINOCULARS

Dynamic in power and range. Weighs 4 oz. At 1000 yds. has sharp, clear field of 370 ft. Moisture proofed! Dust proofed! Achromatic lens. All metal CHROME construction. Individual eye focussing. Adjustable all eye widths! A compact, durable, all purpose prism binocular. NOT a field glass. COATED! Economy priced at fraction of what similar glasses sell at retail. $19.50.

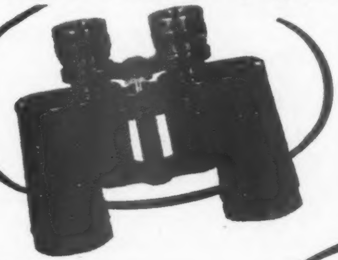
ALSO 7 POWER POCKET BINOCULAR. Same specifications. Weighs only 7 ounces! Only $24.95. Prices on both include genuine leather cases and straps.

Both bear the UNITED seal of approval.

PROOF

AMERICAN RIFLEMAN

"Recently we have been testing a 6 POWER BINOCULAR sold for $19.50 plus tax by UNITED, Chicago. Neat, attractive, stoutly made, gives good clear image and a good glass for the money . . . etc."



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FEATHERWEIGHT! COATED!

7x35 — $49.50 7x40 — $52.50

Combine POWER and LIGHTWEIGHT! Superb glasses. Instant focussing with individual focussing right eye! Come with handsome leather case and straps.

7x35—Same Model but with Individually Focussing Eye Pieces $45.50

7x50 PRISM BINOCULARS $36.00 COATED

BRAND NEW. Achromatic lens! Have precision ground optics, lightweight metal bodies. Moisture-Dust proofed. COATED for better performance! Price includes handsome, genuine leather case and straps.

6x30—$29.50

8x30—$34.50 COATED

10x30—$45.00 LIGHTWEIGHT

Three (3) superb glasses. Weigh only 16-18 ounces each. COATED so each gives maximum results, sharply, clearly. Each measures a compact 4½x6 inches. Only in power and price do they differ. Achromatic! With leather cases, straps.

16x50 COATED $69.50 CENTER FOCUS

Featherweight. Weigh 31 oz! Combine tremendous power, instant center focussing, plus magnificent light transmission. Objective lens 2" wide! Individually focussing right eye. Case, straps.

COATED

8x40—$54.50
10x50—$62.00
12x50—$65.00
16x50—$69.50

Powerful, precision made glasses. Achromatic lens. Individual eye focussing. Superb glasses of quality construction.

Fine leather cases, straps.

UNCONDITIONALLY GUARANTEED

Every UNITED binocular sold with WRITTEN GUARANTEE CERTIFICATE! Return, if not satisfied, for full unquestioned refund.

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FULL 7 POWER PRISM BINOCULARS

MONEY BACK GUARANTEE $22^75*

We offer this guarantee to assure you of complete satisfaction. We know that all our binoculars are made from the finest materials available and are manufactured to our specifications by expertly skilled technicians. You will be proud to own a binocular carrying the FAR EASTERN Trade Mark. Your assurance of perfection

New 7 POWER BINOCULAR

$22^75* WITH CASE AND STRAPS

7 X 18

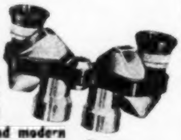
Originally designed for secret agents of World War 2—Now vastly improved! Surpasses anything in its field! Ideal for all-round use: Hunting, Theatre, Races, Nature Study and General Observation purposes. Has full 7 power magnification, achromatic lenses. Color corrected, coated optics. Size 3½"x2½"—Field of view 375' at 1000 yds. Wt. 7 ozs.

8 x 30 mm.
CENTER FOCUS

A Compact Powerful Precision Binocular. Sharp Delineation, Perfect Alignment. True color rendition. Achromatic lenses. Coated optics. Has easy carry plush lined leather case and straps.

$36^00*

6 x 15 mm
Miniature Model



So tiny it can easily be slipped into vest pocket or purse. Full 6 power coated prism binocular. Smart and modern design. Beautiful lustrous chrome finish. Color corrected achromatic lenses. Coated optics. Wt. 5 ozs. Size 2" x 3¼". Field of view: 370' at 1000 yds.

$17^50*

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2251 W. Pico, Dept. AR-2, Los Angeles 6, Calif.
Dealer Inquiries invited

Ricochets . . .

CZECH RIFLE

Milwaukee, Wisconsin

Editor:

Lt. Morgan's reference (RIFLEMAN, December) to the possibility of Japanese arms bearing Czech arms marks brings to mind several 8-mm. Mauser rifles I saw shortly after the war was over. These were of Czech manufacture, having been made by Skoda at Pilsen, were marked with Czech proofs, and were seized in one of the arsenals of the Tokyo Police Department where they were on hand as regular issue. I don't remember the dates, but the finish on these was excellent and almost without doubt of pre-war manufacture. The highly rubbed stocks (very soft but not shiny) were of some sort of walnut, most probably of a European variety.

I think the information that the model 38 might have been made in Czech arsenals is of interest though I haven't come across any evidence of this sort of thing in my research on Czech arms manufacture.

HARRY WANDRUS

JAP RIFLE

Los Angeles, California

Editor:

In regard to Lt. Morgan's article concerning Japanese rifles:

I note that he is puzzled as to the purpose of the horizontal wings found on the rear sight of some Jap rifles. These wings were designed to improve the accuracy of antiaircraft fire delivered from these rifles, by making it possible for the Jap rifleman to hold a more accurate lead on enemy aircraft.

AL BUNIN

RUSSIAN RIFLE

New York, New York

Editor:

In connection with Le Roy A. Morgan, Jr.'s note in the January issue:

Can't we settle this once and for all? The Soviet military rifle is neither a "Nagant," nor a "Mossin." The original model adopted for rearmament of the Imperial Russian Army in 1891 was officially designated the "*Russian 3-line Rifle Model of 1891*." It incorporated three component parts designed by Nagant, seven by Mossin, the rest by other persons.

The rifle was modernized in 1930, and designated "*Soviet 7.62 millimeter Rifle, Model of 1930*."

Correct designation is therefore: *Russian M/1891, Soviet M/1930.*

There existed, in the sample stage, a Nagant rifle and several Mossin rifles. None of them were adopted.

NICHOLAS W. ORLOFF

IDAHO ELK HUNT

Seattle, Washington

Editor:

May I say first that I appreciate the articles on hunting that you print in the RIFLEMAN. I read with interest "Idaho Elk Hunt" for I have hunted in that area. In 1943 I flew my private plane into the Crandall ranch to hunt deer, and got my limit (two) in one day. It is a great country.

In "Idaho Elk Hunt" I noted with interest the precautions against meat spoilage—except one. That one I think should be called to the attention of all elk hunters—the immediate skinning. I wouldn't care to eat Ted Trueblood's elk that was left overnight with the hide on. It would not resemble "prime beef." The wardens and rangers will tell you how much elk meat spoils each year because of the ignorance of hunters on this point.

My partner and I each got our elk this year in Yakima county in the Cascades—where the snow was a foot deep and the temperature below freezing at night. We saw a hunter kill a bull elk in the late afternoon and by nine the next morning you could smell the spoilage twenty-five yards away. It had not been skinned. At the checking station, the ranger graded our meat "excellent," the grading that only about five percent of the meat checked at that station received. Our game department stresses this point in the care of elk, but still the great waste goes on. If the sports magazines publicized this, it might help. I might add that wherever you hear someone state that they don't care to eat elk meat, that they didn't like the "wild" taste, you can be sure that it did not have the proper care. Besides immediate skinning, it is also best to split the brisket and neck for the meat is so thick around the neck that it will quickly spoil.

WAYNE M. BUTCHART

ONE FOR SHARPE

Dallas, Texas

Editor:

I note with pleasure your announcement that Phil Sharpe has joined the NRA Staff. Mark up another bullseye for the NRA.

I consider my NRA membership the best investment I ever made. I would not give up my membership, and do without the RIFLEMAN, for twenty times the fifty bucks it cost me.

DAN W. BUNCH

. . . AND FOR KEITH

Victor, Iowa

Editor:

This is "One For Elmer," or whatever you want to call it. I think it is time someone came to his defense. . . .

Ricochets is full of criticisms of Keith from idiots who think they are authorities on big-game hunting by virtue of the fact that they live in big-game country, or have luckily taken a few heads with an inadequate rifle, probably because they are too lazy to lug a big rifle around and too scared to shoot it should they get the chance. Apparently they don't care how many they wound to get away and die. We never hear about the ones they cripple, but only about the game they have piled up.

Although we have never met, Keith and I correspond occasionally and I have nothing but respect and admiration for him. A sentence from one of his letters might truly fit the occasion and I am sure he wouldn't mind it being reprinted. "I have long maintained that if a man cannot handle the recoil of an adequate rifle then he should not torture game by using a small one, but stay home and join the Ladies Aid or something." If the shoe fits, wear it.

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Rangely, Colorado

Editor:

Elmer Keith has never said the .30-'06 won't kill. He admits it kills elephants! He also states that a fine, cool shot could use most any gun and, being careful each shot, kill big game dead. Perhaps Jim Osman is such a fellow.

But Keith also knows that most hunters aren't good shots and bang away at any range and wound fine animals to die later after suffering.

In these western states, for every animal bagged, one escapes wounded to die! Elmer knows that and hates it. Unless Osman associates with super hunters, he knows it too and should insist his hunters not be undergunned.

GLADYS GOODRICH

Athens, Pennsylvania

Editor:

The old advice still is current coin: "If you want a good deer rifle, buy a good moose rifle." Anyone who has seen game walk off with a properly-placed but puny bullet should agree with Keith. It's illuminating to reflect on how few are the needle-gun boys who are reckoned among the world's great hunters.

DR. HENRY M. STEBBINS

SHARPSHOOTER

Utica, Pennsylvania

Editor:

The December RIFLEMAN is one of the best but in the second sentence in Col. Whelan's "Scopes for Hunting Rifles" he uses a modern word instead of the original Civil War one: "A few used on *sniper's* rifles during our Civil War." The word sniper is of modern origin and had not been coined in Civil War days. At that time we had sharpshooters, for instance, Berdan's Sharpshooters at Gettysburg. I very well remember a comrade of my father's, who was a member of the Pennsylvania Bucktails. This man often told my father his rifle weighed 30 pounds and with its scope he could count the buttons on a man's blouse at 80 rods. These rifles were hauled in the munitions wagons.

W. R. MCCAY

HOLE-IN-THE-HAND

Liberty, New York

Editor:

Take something like a Sharps four-barrel derringer. Load it with four .22 caliber standard shorts. Now, holding the opened pistol in one hand, rap the muzzle smartly into the open palm of the other hand, thereby locking the barrel and action.

Now it's closed. Makes you feel like an old gun hand . . . sort of a pint-sized Elmer Keith. Fine!

It just so happens that if you didn't take the precaution of half cocking the hammer, slamming the barrel closed will probably indent the cartridge rim against the protruding hammer nose, then . . . "OUCH! OOOOH! &Z# DAMN!" For the next few days you can watch television through the hole in your hand.

The cute little Sharps now becomes The Thing! You can't get rid of it fast enough. But wait a minute! If you half cock the hammer, extend your pinky, grasp the barrel with three fingers it will close easily and safely.

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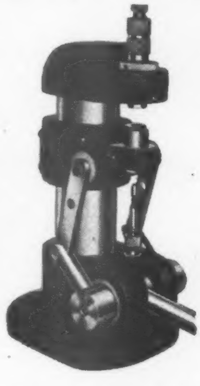

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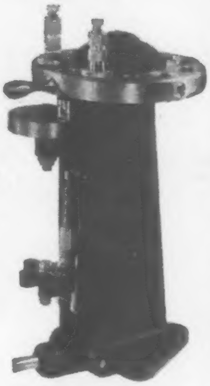

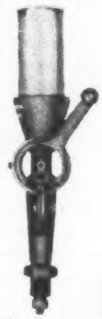

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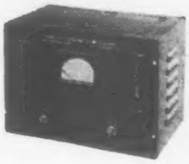

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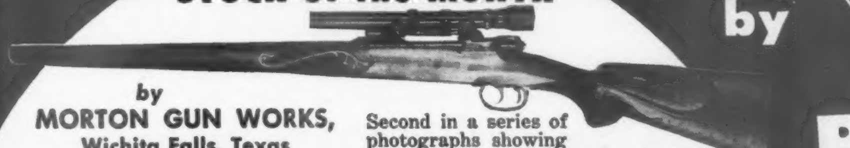

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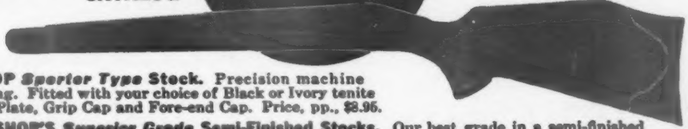

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Editorial

Back to First Principles

Losing sight of basic facts is an easy thing to do. For instance, ask your shooting partner if he knows the real reason behind the existence of the National Rifle Association. Or ask yourself. Do you know?

Is it to send you a copy of the AMERICAN RIFLEMAN each month?

Is it to serve as the governing body of organized target shooting in the United States?

Is it to safeguard you against the passage of restrictive antigun laws?

Is it to organize and promote civilian rifle and pistol clubs?

The answer to each of these questions is NO . . . although each function has an essential role in the activities and "reason-for-being" of the National Rifle Association.

Then what is this National Rifle Association of which you and I are a part? Why do we support it? Why is its membership restricted to loyal American citizens?

Let's get down to facts. What do the by-laws of the Association say?

" . . . the objects of this Association are to promote social welfare and public safety, law and order, and the national defense; to educate and train citizens of good repute in the safe and efficient handling of small arms . . . to increase the knowledge of small arms and promote efficiency in the use of such arms on the part of members of law enforcement agencies, of the armed forces, and of citizens who would be subject to service in the event of war; and generally to encourage the lawful ownership and use of small arms by citizens of good repute."

Stripped to its essentials, the National Rifle Association is a patriotic organization dedicated to the defense of the United States . . . to the theory that a nation of citizens armed with personally-owned weapons and trained in their use is less likely to be overrun than a nation of untrained, disarmed citizens . . . to the encouragement of "lawful ownership and use of small arms by citizens of good repute."

Another passage in the Association's by-laws further reveals the reason-for-existence of the NRA. "It is the duty of each member to assist in every feasible manner in promoting the objects of the Association as set forth in . . . these by-laws and . . . it is the duty of organization members to maintain their shooting ranges in a state of adequate repair, to operate their ranges in a safe manner under properly qualified supervision, and to conduct a continuing program of small arms instruction and competition . . ."

These directives contained in the Association's by-laws leave no room for doubt about the NRA's basic aims. Subservient to the broad principles they express are all of the media by which such aims may be accomplished: this magazine, the NRA's competitive program, the continuing Association-sponsored fight to prevent disarmament of the American people, and the network of civilian rifle and pistol clubs which covers every state, every territory, and every major military outpost at which Americans are stationed.

While we are rediscovering "basic facts," a couple of others deserve mention. The NRA is a non-profit organization supported by the membership fees of public-spirited citizens and clubs. It is not affiliated with any manufacturer of arms or ammunition, it does not deal in arms or ammunition, and it receives no appropriation or subsidy from Congress.

So much for that side of the picture. The Association *does* cooperate with arms manufacturers, with all branches of the U. S. Armed Forces, with Federal agencies, and with state and municipal governments in order to teach and encourage small arms marksmanship among the greatest possible number of U. S. citizens. During the last war, NRA members furthered the basic program of the Association by teaching the correct use of small arms to 1,750,000 Americans.

The National Rifle Association is, like most of today's organizations, a complex structure. Its activities are varied. Any one of them may seem at the moment to be the chief reason for the Association's existence. It is important, therefore, to go back once in a while to basic principles. In the case of the NRA those principles are that every able-bodied American shall be able and equipped to defend himself in time of emergency, and that our people shall not suffer the personal disarmament experienced by the citizens of so many European countries.

Getting down to first principles, do you as a shooter—and as an American—fit into that picture? Are you, in your capacity as an individual member of the National Rifle Association, doing all you can to further the basic principles which are our "reason for being"?

John Scofield

An expert advises on the methods and equipment used in international rifle matches. (For more on U. S. participation in internationals, see page 58.)

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By ARTHUR C. JACKSON

Shooting the Free Rifle

NOT SINCE the advent of the smallbore match rifle has the American marksman had the freedom and privileges in organized tournament competition that he has under current rules. So liberal is the gallery section of the NRA Official Smallbore Rule Book that, with the exception of the three-pound trigger pull, shooters are actually using a 'free rifle.' Strictly speaking, of course, the term 'free rifle' is applied to the specially-designed match equipment used throughout Europe and South America in Olympic, Pan-American, and International world championship competitions. The only restriction placed on a free rifle is that it must not weigh more than 19.8 pounds. In free rifle competitions, only metallic sights may be used.

As these recent changes of rules apply only to equipment and accessories—in no way do they affect present gallery courses of fire—this article will concern itself solely with the assembly and use of free-rifle equipment as governed by the International Shooting Union, of which the National Rifle Association of America is a member. The Shooting Union is the organization which has the last say on items of equipment, range procedure, and match conditions for all international shoulder-to-shoulder competitions. Free rifle equipment, incidentally, may now be used in NRA .22-caliber gallery tournaments if the trigger pull can be adjusted to lift a three-pound weight.

The changes in smallbore rules referred to permit the shooter to add attachments to his rifle so that the final result—the point score on the target—will be improved with less physical effort. Now, instead of adapting oneself to a factory-designed rifle stock, adjustable palm rests and prong-type buttplates may be used. Because these pieces of equipment can be adjusted to any position, it is seldom that one shooter can use another's rifle with equal results. That's how personalized free rifles can be.

A palm rest is usually placed several inches forward of the trigger guard, to be held by the supporting hand as the arm is braced against the side and the elbow rests on, or near, the hip in the standing position. Its shape may vary from a small platform to rest the finger tips on, as used by Dr. Hudson, the famous offhand shooter of the early 1900's, to the intricate rest shaped to fit the entire hand and fingers which was used by Osborn when a member of the U. S.

R. G. Maslem Jones, Australian member of the British team in the 1948 Olympics. Note thumb-hole stock and use of palm rest in standing position. Rifle is .303

I. H. Erben of Sweden used an Esthonian 6.5 mm. free rifle in the '48 Olympics at Bisley, England. Here he fires prone at the difficult 300-meter target

Otto Kolb of Pelham, New York, firing in the kneeling position. Stock, though of American manufacture, follows European tradition for free-rifle equipment

International team in 1927. Most shooters will find that something in between will be more to their liking. Individuals who have long arms and who are comparatively short from shoulder to waist may get no assistance from such a rest, finding it simpler to grasp or support the bottom of the forestock. But should a shooter decide to use a palm rest, some experimenting in shape and placement will be necessary, plus considerable practice. The present trend in rests is away from the scheutzen hinged-rod-and-small-ball type. They are now more sturdy and necessarily bulky in comparison to their predecessors. The Swiss Hammerli rest is little more than a block of wood. However, it does have cut-out sections that fit the general shape of the hand, and it is adjustable in lateral swing and elevation. The Finns, on the other hand, use a very odd-shaped 'fishtail' rest that is adjustable for lateral swing only. The two tail-like projections vary in size and depth, their use being dependent upon the shooter's preference. These are but two of the more common commercial rests which are produced in Europe. There are others in use, many of which are designed and made by the shooter himself.

As for the prong buttplate, there is no better description than its own name. Serving little purpose in the prone position, it really comes into its own in kneeling and standing. The shape, in modified form, dates back through more than a century of use. The scheutzen offhand shooter altered the original crescent shape by increasing the depth of the curve and extending the lower prong so that in aiming the heavy target rifles no muscular effort was required to keep the butt in place. The plate fitted the upper arm at the shoulder and was locked in place as the arm was lowered over the prong, leaving the hand and fingers free of strain. Present-day international-type buttplates are basically the same, but they are made adjustable in arc so that the distance from the center of plate to the trigger remains the same in all positions. Instead of twin prongs, the top is now pushed up and flattened for more comfort in the prone position.

For free rifle use, the design of the stock is of utmost importance. It is often a difficult problem to decide what is really wanted. As the scheutzen shooter fires his rifle from the standing position only, his stock is therefore designed for that position. In use, the well-known 'leg-of-mutton' shape gives firm support to the face through the cheek rest, and the great depth of the stock allows the lower line of the butt

To minimize effect of wind, internationals are fired from shooting booths

to rest against the chest. The position of the prong butt plate is usually fixed and the stock has great depth at the heel. Such a shape would be of little use in kneeling and even less in the prone position. Therefore, a compromise had to be made, and that's just what the free rifle stocks used throughout Europe are.

Present-day equipment was designed by people who have been attached to the free rifle since its infancy. Since Americans are practically beginners, we will do well to accept the experience of the Europeans and make changes only where we find it necessary. Catalogs and pamphlets obtainable from several of the larger sporting-goods companies illustrate the three best-known imports—the Swiss Hammerli, the Danish Schulz-Larsen, and the Finnish Lion. Due to high import duty, the price of these arms is beyond the majority of shooters. However, their various designs can serve as patterns to work from if such a stock is desired. The Sportsman Shop (Greeley, Colorado) has brought out on a production basis the first international-type stock to be offered in the U. S.

All free rifle stocks have one obvious departure from customary design—the 'thumb hole.' Thumb-hole stocks are not total strangers in the U. S. as they made their first appearance on our smallbore ranges in the 1930s. The location of the hole in the butt stock is just to the rear of an almost vertical pistol grip, being sufficiently large to accommodate the entire thumb and the 'ham' of the hand. It affords a comfortable, secure grip in all positions, especially in kneeling and standing. At the same time the direction of trigger pull is straight back, in line with the axis of the bore, a mechanical arrangement which is theoretically correct. By eliminating the customary grip, the top line of the comb is carried forward in an unbroken line to the edge of the receiver so that, regardless of face position, the line of sight is unchanged. In general, a free rifle stock—thumbhole design or any other—should be of most benefit in standing and kneeling, with prone comfort being the last consideration. It is, therefore, suggested that the length of the butt stock be a little shorter than that used for prone. The bulk of the rifle will be closer to the body, where it can be controlled more easily. If necessary, a spacer may be added for the prone position. Another consideration, but for international tryouts and competition only, would be the use of two rifles for the match. ISU rules permit a change of arm in a match but both rifles must be of the same caliber.

The offhand stance common to all who have used the NRA standing position—that of supporting the weight of the rifle on the finger tips—has the left hip pushed out and most of the weight on the left leg for the right-hand shooter. In free rifle shooting, to take full advantage of a properly fitted palm rest and prong buttplate, the weight should be more evenly distributed on both legs. In fact, the body ought to sag, or be relaxed, so that there is no leg strain in handling the rifle. Practicing one's shooting position at home is a necessity. It will allow you to get in more actual shooting when at the range.

For the standing position, the shooter takes his place on the firing line, sets up his spotting telescope, and places his chair or stool in position. Then, when the rifle is brought to the

(Continued on page 53)

Coach and shooter teamwork as displayed at the 1948 Olympics. Here the Finns fire at 300 meters. Note position of buttplate on Mauser rifle

SERVICING YOUR GUNS

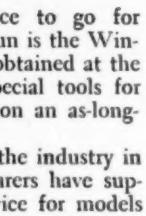
BY PHIL SHARPE

A DOPE BAG 'REVIEW'

It should be obvious that the best place to go for repairs, parts, or service on a Winchester gun is the Winchester factory. Service for a Colt should be obtained at the Colt factory. Of course, repair parts and special tools for old and obsolete guns are always maintained on an as-long-as-they-last basis.

The NRA staff has undertaken a survey of the industry in an effort to aid you. The various manufacturers have supplied current information on their repair service for models of their manufacture which have been discontinued. Full service can be given on any models of current manufacture. On older models here is the situation:

COLT:

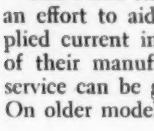


Parts and limited service can be had for a few of the older guns, but it is advisable to check with the factory. Guns in this limited class include the old .38 pocket-model automatic, the .38 military auto, and the Police Positive Target. Full service is available on the Single Action Army, .32 pocket automatic, .300 pocket automatic, .25 auomatic, and Army Special. In addition, full service on current models. Write Repair Department, Colt's Manufacturing Company, Hartford 15, Connecticut.

FOX:

See under Savage.

HARRINGTON & RICHARDSON:



For older H&R weapons, Harrington & Richardson service personnel are expanding their facilities to take care of as many out-of-production H&R arms as possible. For arms manufactured after World War II, it is planned to supply all necessary parts. For arms manufactured between 1930 and the end of the last war, H&R anticipates being able to replace any part other than barrel, frame or cylinder. So anxious is H&R to further customer goodwill that they plan to make by hand, if necessary, small parts for such arms if they are not available in stock. On such arms, it is anticipated that 85 percent service will be available. On guns made *before* 1930, write first to the Service Department to find out if parts or service are available for the model you have. For service or repair information on any other models, write to the Service Department, Harrington & Richardson Arms Co., 320 Park Avenue, Worcester, Massachusetts.

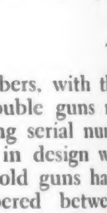
HIGH STANDARD:

Here we have one of the younger firms which has made considerable progress in the shooting world. There have been many new models—each an improvement over the other. The idea of service on the older guns made obsolete in a short time has been given special attention. Bill Donovan, sales manager of High Standard, writes: "In covering shoots this past year I was particularly disturbed by the feeling among shooters over the poor service they receive from firearms factories. I am pleased with the prompt and courteous service our boys are giving here at High Standard. As of this writing, if a pistol comes in for repairs, it never remains more than forty-eight hours if instructions are complete. W. W. Lawson—himself a shooter—heads the Products Service Division. If you have a repair problem, write him at 1817 Dixwell Avenue, Hamden 14, Connecticut.

Lawson and Donovan state that even where correspondence is involved, it is rare that a gun is not returned within two weeks. Most parts orders are filled at once. Magazines on older models create some delay. Most parts are shipped the same day the order is received. The factory prefers to have a professional gunsmith in your territory do the work, but will ship direct to you, or will undertake repair work at the plant. Repair parts for the very early High Standard models bearing serial numbers below 45,000 are no longer manufactured, but limited service is available as long as stocks last. Yet some of these older models can be fitted at the factory with parts built for more current types. Thus it boils down to a very simple analysis: If you have a gun of this make which needs attention, write to Mr. Lawson, stating in full detail all of the trouble you are having, what you want repaired or replaced (if you know), and you will receive immediate attention. From my personal knowledge of the boys at the plant, I'll say that you will get faster service than you will on an order for a brand new gun.

ITHACA GUN COMPANY:

Few Ithaca guns are known by model numbers, with the exception of the pump guns. On Ithaca double guns no service is available on the old-type arms bearing serial numbers under 175,000. At this point a change in design was made, and available parts and tools for these old guns have long been consumed. Double guns numbered between 175,000 and 399,999 will be given limited service. All guns numbered over 400,000 will be given full service. Ithaca single-barrel trap guns numbered under 400,000 will be given limited service; numbered over that, all service. There is no service available for the Ithaca-built Lefever *single*-barrel field or trap guns, but full service can be given all Lefever double guns marked "Nitro Special."



Lefever doubles bearing the old Syracuse address, and all numbered under 100,000, can be given no service. It is advisable to inquire before shipping gun to Service Department, Ithaca Gun Company, Ithaca, N. Y. In your inquiry, give model and serial number as stamped on receiver, gauge, grade and an outline of the work desired.

LEFEVER:

See under Ithaca.

MARLIN:

Full service on Model 90 shotgun, 39, 39A, 97, 1897, 36, 36A, 1936, 1893, 336, 80, 80E, 80C, 80DL, 81, 81C, 81DL, A1, A1C, A1DL, 100, and 88. Limited service is also available on some older models such as the Model 19 and 98 series of the hammer-type repeating shotgun. Small parts are available for some of the older pump .22 rifles discontinued in the early 1920's. The .22 lever-action rifles of the Model 1892 and 1897 series can usually be repaired by converting to the newer Model 39A. This includes replacement of bolts to handle modern high-speed ammunition.

Mr. H. H. Teator, manager of the Gun Service Division, writes: "It is impossible to advise concerning repairs, since sometimes replacement of certain parts also requires replacement of associated parts. If the customer will ship his rifle to us prepaid, we will examine it in detail and advise on the cost and advisability of repairs."

L. C. Smith shotguns were formerly made at Fulton, N. Y. The company was purchased some time ago by Marlin, but all operations at the Fulton, N. Y., plant have not been concluded. Much of the machinery and equipment has been transferred to the Marlin plant at New Haven, where a new building was set up to house the L. C. Smith Gun Company operations. The future production policy on L. C. Smith guns is somewhat dependent on how the present international situation develops. In the meantime the owner of an L. C. Smith or Marlin gun needing repairs should address the Marlin Firearms Company, Gun Service Division, New Haven, Connecticut.

MOSSBERG:

Mossberg apparently can undertake full repair service on most discontinued models of their make. A special list of parts is available and parts only will be supplied to the customer, although the gun may be sent in for a small service charge plus packing and shipping. Small parts will be supplied but minimum charge is '5 cents. Models so serviced include the following rifles: 26B, 26C, 42A, S42A, 42AS, 42ABT, 43, 43S, 43SS, 43B, 35A, 35B, 45A, 45AC, 46A, 46AT, 46BT, 42B, 42C, 42M, 42TR, 142A, 44B, 44US, 45B, 46B, 46M, 51M, 151M, and 152. Models 50 and 51M can be serviced but must be returned to the factory.

Later models of shotguns can be serviced including 73B, 75B, 83B, 83D, 183D, 85B, 85D, and 185D. About all models of Mossberg telescope sights and spotting scopes can be completely serviced. The service department can refinish stocks and metal parts on most models, but those not listed above cannot be serviced as no parts are available. Write O. F. Mossberg & Sons, Repair Service, New Haven 5, Connecticut.

PARKER:

See under Remington.

REMINGTON:

Complete service is available on the discontinued Models 8, 11 and Sportsman, 14, 31 and 32. Limited service is available on Models 12, 24, 41, 341, 30 and 720. In addition, limited service is available for Parker double-barreled shotguns. Address Products Service Division, Remington Arms Company, Ilion, New York. Be sure to check by letter before shipping gun.

SAVAGE:

Owners of Savage arms may find the marking "Savage Arms Corporation, Utica, N. Y." stamped thereon. Disregard this address. Since the last war, Savage has moved their firearms manufacture to their several plants in Chicopee Falls, Massachusetts, and this address should be used to avoid delays. The old Utica plant is still Savage-operated, but no longer produces firearms. Savage owns and produces Savage, Stevens, Springfield and Fox arms. For any of these makes, one service department functions for repair. Address all inquiries to Savage Arms Corporation, Service Department, Chicopee Falls, Massachusetts.

Savage: Model 6 can be converted to current 6A; Model 3 to 3D; Model 4 to 4C; Model 5 to current. Model 23AA, full service. Limited service, depending on availability of parts, on Models 420, 430, 40, 45, 20, 23B, 23C, 19NRA, 19-33, 19 Hornet.

Fox: The full line of Fox shotguns can be serviced, but parts will not be shipped. Entire gun must be sent in for repairs and fitting of parts.

Springfield: These guns must not be confused with weapons bearing the mark "Springfield Armory." No work attempted on Armory or Government guns. Models 57 and 76 can be given full service. Model 56 can be converted to the current Model 84C; Model 66B can be converted to Model 86C.

Stevens: Full service can be given on Models 322, 325, 22/410, 75, 240, 416, 237A, 37A, 417, 418. Conversions can be made on models as follows 87 to 87A, 53 to 53C, 84 to 84C, 86 to 86C, 238 and 258 to 258A, 38 and 58 to 58A, 237 and 254 to 237A, 37 and 54 to 37A. The Model 515 can be serviced if the number 5000 is stamped on the frame. In the Model 520, there were changes without changing model number. Some of these can be serviced. On the Model 330, repairs are limited to parts available.

SMITH & WESSON:

The repair department at Smith & Wesson is operated purely as a service and accomodation to the customer, at a considerable financial loss. The company reports that they have stocks of some parts for every model they have produced with the exception of the old Volcanic line. There are of course shortages in some of the small parts most frequently repaired, but where necessary these are specially manufactured even though they often cost many times the amount charged to the customer. The average time for repair of these older models may be thirty days or more, but every effort is made to give service as promptly as possible. Refinishing service is available for all models. It is advisable, especially under present conditions, to write to Smith & Wesson, Service Department, Springfield 4, Massachusetts, giving full details, before shipping your gun.

L. C. SMITH:

See under Marlin.

SPRINGFIELD:

See under Savage.

STEVENS:

See under Savage.

WINCHESTER:

On Models 54, 03, 06, 90, 92 and 55, fairly complete service is available. Some parts for specific calibers may not be currently available. On Model 11 service is limited to small parts only—no major parts are available. On the Model 1886, service is limited to certain available small parts. No barrels except .33 Winchester are available. On the Model 73, a few small parts are available, but no barrels. For Models 95, 40, and some of the single-shot actions, there are some parts available, but service is limited. For any service, address Products Service Division, Winchester Repeating Arms Company, New Haven 4, Connecticut. Give full data on model, caliber, and if you think parts need replacement, indicate those parts, together with a description of the work you desire on your gun. Do not ship the rifle until you receive your reply.—Phil Sharpe

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BIG-GAME ANI

The predatory mountain lion, probab
vengeance than for spor of the
that can be taken by follo pattern

the Puma

By **JOHN MOYER, Staff Associate**
Chicago Natural History Museum

Possibly the only big-game animal to be hunted more for vengeance than for sport is the puma. Listed at the top of the predators responsible for the slaughter of uncountable numbers of deer, elk, and similar animals, the puma (*Felis concolor*) has had to be controlled by scientific methods of killing. Some states make it a paying business for the professional hunter by awarding bounties for each animal killed.

America's best known representative of the cat family, the puma is familiar by several names throughout its range. It may be called cougar, panther (these names having their origin in South America), mountain lion, and several others —catamount, deer killer, Indian devil, mountain devil—which are of Indian origin. Some confusion naturally exists when an animal bears so many different names. However, the name mountain lion is the one most widely accepted in the western United States, although the animal is not confined to mountains, nor does it closely resemble the Old World lion except in its tawny color.

The puma has a wider distribution than any other of our big-game animals. It is found in nearly all of the wilderness areas of western America, from southern British Columbia and Alberta; from eastern Louisiana and New Mexico to the Pacific Coast; on Vancouver Island; also, throughout several areas in Florida. It is also found ranging southward from New Mexico throughout nearly all of South America.

The puma is the second largest member of the cat family found within the borders of the United States. The jaguar, the largest and most powerful, has its range touching on the southern border regions of Texas, Arizona, and New Mexico. However, the puma is also a very large cat, strong and muscular, although its body is long and slender. The small head has rounded ears which are not tufted as in some of the cats belonging to the family. Its soft fur is dull yellowish-brown, a reddish-brown, or all gray; paler on shoulders and flanks, merging into a dirty white on the under sides. The tail is long, heavy and rounded, tipped with a dark brown or black patch. There is also a 'freak' color phase, the melanistic or black which seems to be common in some sections of Florida. Total length of an adult puma is from 6 to 9 feet and its weight from 100 to 200 pounds. Although there are records of the animal weighing more, records over 200 pounds must be accepted as being far above the average. Females vary from 30 to 40 percent less in weight.

It is possibly not a misstatement to say that, were bounties not in force as wages to be earned by those who hunt the puma, very few of our big-game animals such as deer and elk would be numerous today. Each

(*Continued on page 18*)

LS *of North America*

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attern in hunting

On the trail of the long tail

By ELLIOTT BARKER, Game Warden
State of New Mexico

BACK IN 1908 I booked a party of sportsmen from Indiana for a mountain lion hunt in the Sangre de Cristo Mountains. We saddled our horses in the crisp dawn of a November morning and headed up the snow-covered trail toward lion country. My dogs were frolicking and baying around us with anxiety for the chase.

"Hell's fire! That noise will scare all the lions out of the country," exclaimed Jim, the youngest of the three hunters.

"The dogs will soon quiet down until we hit a lion or cat track," I assured him. "Then the music will start and beat any orchestra you ever heard."

But Jim didn't like the idea. The upshot of it was that Jim decided to go out toward Hermit's Peak and hunt lions alone, his way. I told him he didn't have a ghost of a chance to get a lion without dogs, and, besides, I was afraid he would get lost. But he went his way and we went ours.

Tired from a long ride, with only a bobcat to show for our efforts, we returned at dusk and were tauntingly greeted by Jim. "I told you so," he said when he saw we had no lion, "but I did all right."

"You did at that. You got back," I said with a touch of sarcasm. Then we were utterly flabbergasted when we saw the long fresh skin of a mountain lion draped over the porch railing.

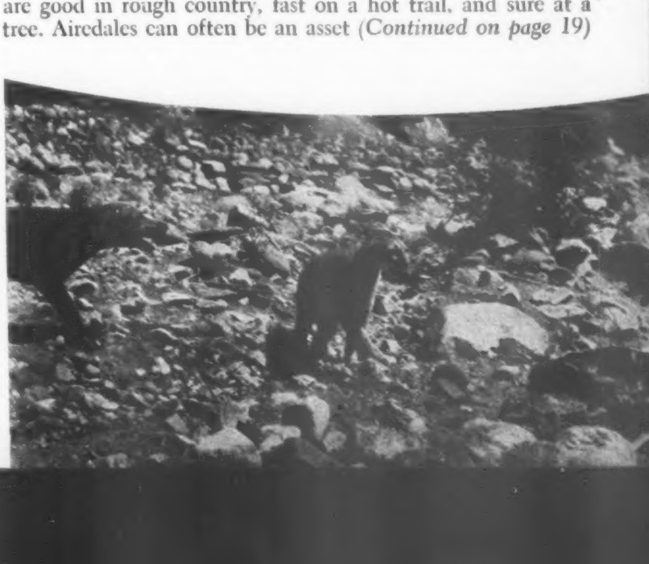
At supper Jim condescended to tell us about it. He had scouted around awhile without even seeing a lion track. When noon came he climbed up on a big rock where the snow had melted off, ate his lunch and relaxed for a little New Mexico siesta. When he woke up he noticed a queer looking, long, yellowish-brown object on a neighboring rock a hundred yards away. He whistled, and to his amazement a big female lion raised up and looked around.

"When she looked the other way," Jim said, "I let her have it with my new .30-'06 Winchester and it left a hole in her side you could poke your fist in."

He skinned her right there, came on back to the ranch, and no one could ever convince Jim that his system of mountain lion hunting wasn't the best way. Actually it was a fluke. He had hit the one chance in ten thousand and got his lion. After fifty years of experience, off and on, and well over a hundred lions to my credit, I still say that's not the way to hunt mountain lions. Any competent, reliable lion hunter will tell you that good dogs and stout, sure-footed horses are absolutely essential for good sport and successful hunts.

What kind of dogs are best is a question often asked. Answer: The dog with a combination of cold trailing ability, persistence, endurance, a strong heart, a love for a lion track and disdain for those of other game, and a good voice, is the dog you want—regardless of blood lines. In the southwest there are many packs of trail hounds bred for generations for lion and bear hunting whose ancestry could not be traced back to any particular strains. They are just good lion and bear dogs, selectively bred and developed for the specific purpose. Of course, they must be trained not to run deer or coyotes, and to be amenable to command so that they may be kept off of bear if desired.

Personally, I have had good success with some airedales, particularly when using one or two with the hounds. They are good in rough country, fast on a hot trail, and sure at a tree. Airedales can often be an asset (*Continued on page 19*)



the Puma

Continued from page 16

puma has been credited with killing from fifty to one hundred of these animals each year. Were it not for some kind of control, the steady slaughter by thousands of these big cats could be a serious threat to wild life, especially among the larger animals. Bounties have been in force by some of the states since early times, as records back to 1764 show, and while this has been one of the causes of the puma's extinction in some areas of the eastern states, it has been also a controlling factor throughout the remainder of its range.

The puma does not always depend on large animals for food, as there are times when they must turn to the smaller ones such as foxes, raccoons, rabbits, porcupines, and also birds of different kinds. Domestic stock, especially young colts, often suffer from repeated raids, much to the dismay of ranchers and stockmen whose lion hunting expeditions seek the hated marauder. When food is plentiful, a fresh kill is made every night. Obviously, the habit can grow into a serious and great loss should these kills be a sheep, hog, steer, or horse. It is only when food is scarce, the animal old, or in some other way unable to hunt and kill with the stealth, speed and power of a healthy animal, that the killer will come back and feed upon 'leftovers'.

There exist on record actual cases of the puma killing and eating a human being. No one can doubt that the animal is incapable of doing such a thing, as the tremendous strength evidenced in pulling down an elk, deer, or large horse could make short work of an unarmed person.

After leading dogs and hunters a long, hard chase over rough country, a mountain lion will 'tree' and snarl and hiss at his captors

Observations made on caged and zoo animals will credit the puma with having a variety of snarls, yells, cries, and growls, all uttered at different times of the day, month, and year, and under different conditions. These 'noises' express varying emotions, and it seems safe to presume that the same noises could and would be uttered by an animal in the wild. Many reports of terrifying screams from the puma can be credited to sounds of other animals, even birds, which give voice during the middle of the night in some lonesome spot far from camp and civilization, and whose call, especially if weird and unfamiliar, may be attributed to the puma.

Puma, cougar, panther, catamount, and mountain lion are some of the names this animal is known by

The home range of the puma depends entirely on food supply. Under average conditions it may be an area of 12 to 15 miles square. The puma prefers the shelter of rugged, rocky places in the mountains, but it is equally at home in desert regions and near timber-line. Their dens are found in caves among the rocks in the mountains; in level and desert country, dense cover of any kind is used. They have a remarkable facility for keeping out of sight and throughout all their range maintain a peculiar and mysterious habit of aloofness, hardly ever being seen by man under casual conditions. When the male is seeking a mate, or possibly just travelling, he may roam far off his range until the female is found.

No seasonal schedule is followed in the puma's mating. Location and climate, in some sections, play an influential part in the act. The young, then, may be born in any month although the spring months are favored. The male and female are together only a short time, two or three weeks, after which they separate, meeting again only by chance. The gestation period is approximately 13 weeks and from two to five young are born in the litter; usually it is two. The cubs' eyes are closed, although they are fully furred and the color of the fur is a pale fawn with many brownish-black spots. Young pumas weigh about one pound at birth and are approximately a foot in length. The tail is short with brownish-black rings about it. After about the tenth day the eyes open, and for months to come they can be observed playing about among themselves and with the mother in much the same manner as might domestic kittens. The mother works hard to keep her young fed and must consume many meat animals to give her the milk supply needed to nurse them. At about six weeks the young pumas are eating meat brought to them by the mother, and if a kill is made near to the den, she will lead them to it, letting them help themselves to get their first training in hunting. At two months of age, the young accompany the mother on nightly hunting trips. When about eight months of age, they not only look like the sleek and powerful animals they are but they are also able to hunt and kill their own food. The mother does not leave them at that time, as do so many mothers of the wild, but will keep them with her, sometimes for another year, until they are nearly two years old.

Many near-record animals are killed each year throughout the different ranges. Today's all-time record was taken in 1901 by Theodore Roosevelt, near Meeker, Colorado. It was a male whose field measurements are given as 96 inches in length, from the tip of the nose to the tip of the tail. The skull measurements are 9-5/16 inches greatest length over-all, with 6⅜ inches as the width across the arches. The specimen is now in the collection of the Biological Survey, U. S. National Museum. Second place goes to a male animal, also killed in 1935 in Alberta. The field measurements are given as 112 inches from tip of nose to tip of tail, but the smaller skull measurements place it second.

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On the trail of the long tail

Continued from page 17

in a pack of hounds (see author's book, *When the Dogs Bark 'Treed'*).

Lion hunting is a most dangerous sport—not because a mountain lion will stop and fight you, or spring upon you from a cliff or overhanging limb of a tree, for he won't do that. It is dangerous because, in the inevitable excitement of the thrilling chase following the baying pack on a hot lion trail, one will recklessly ride over rough terrain, through thickets, and over slick, frozen hillsides that he would hesitate even to walk over under ordinary circumstances.

Where inexperienced hunters employ a guide to take them on a lion hunt, they should be sure he is experienced and reliable. Of course, he should have the right kind of horses and properly trained dogs, and know how to handle them. He should also be an expert woodsman, should know the country and know mountain lions. As a matter of fact, the guide should be twins—one could look after the dogs and the other the guests.

A mountain lion will not spring on hunter from tree or cliff

Professional hunters usually carry a .30-30 carbine or a pistol to kill the lion when treed. Since it is seldom that one ever gets a chance at long-range shooting, high-power rifles are not needed. What one wants is a cartridge that will make a clean kill at close range, usually 50 to 150 feet. The heavier cartridges will tear up the skin too much, and one needs something light to carry on a rough ride.

I would not recommend a full-patch bullet, for it doesn't make a quick enough kill except on a brain shot and a clean kill is necessary to avoid getting the dogs cut up. I have personally carried either a .32 Winchester Special rifle or a pistol. I have used the .32-20 pistol on a .45 frame but I prefer the old-style .45 Colt with its heavy lead ball. It kills and doesn't tear up the skin.

Mountain lions love rocky places, steep slopes, rim rocks and brush. I have found them in the dense alpine fir and spruce forests, in the yellow pine type of the transition zone, and in the cacti-covered slopes of rocky desert foothills wherever there are deer.

They are by nature nocturnal, usually doing their prowling and killing between sunset and sunup. Yet at times they do prowl and kill during the day. They love to lay up during the day, especially in winter, around a sunny rim rock or cliff. But one never can tell for sure what kind of place the dogs will jump them out.

Mountain lions are strictly carnivorous and normally deer constitute the great bulk of their food. Lions also like porcupines which they flip over on their spiney backs to kill and then literally eat them out of their hides. They kill some rabbits, occasionally a wild turkey or an antelope where their ranges overlap. A highly preferred food is horse flesh. Colts are favored but a 100-pound lion can, and does sometimes, kill full grown range and saddle horses. My observation is that they rarely kill cattle, but once in awhile they get into a band of sheep.

Usually the mountain lion kills only what he needs for fresh food, but sometimes he goes on a killing spree. I know of one instance a few years ago where a big male lion killed two horses and six deer in a thirteen-day period. He does not like carrion and will abandon a kill when the meat spoils. He rarely touches any meat except what he kills himself.

Both Mr. and Mrs. Lion make an effort to keep their meat from spoiling. When a deer is killed, it is usually dragged into a shady place under cover of brush or trees and there disemboweled. Although feasting on the liver, heart, kidneys, and inside fat, the mountain lion—unlike the coyote—won't eat the intestines. After eating his fill, the lion will invariably cover over the remainder of the carcass with leaves, tree needles, or other available material. That helps a lot to keep the meat fresh and to keep crows, buzzards, and eagles away. Even in a rocky, barren place, an effort will be made to cover the kill by scraping up against it loose gravel, small rocks, sticks, or other material within a radius of several feet. That is the distinguishing mark of a lion kill.

Mountain lions do not normally lie on a cliff or overhanging tree limb waiting for their prey to pass by to pounce upon it. Instead, they hunt their prey, principally deer, and when they locate it by sight or scent they stalk it. When within 30 to 150 feet of the unsuspecting animal, they suddenly make a rush at it with long, lightning-fast bounds and, if successful in making the catch, quickly bring the animal down with vicious teeth and claws applied to neck, shoulders, and side. In the event the animal gets away, a lion will not follow, but will turn another way and resume the hunt.

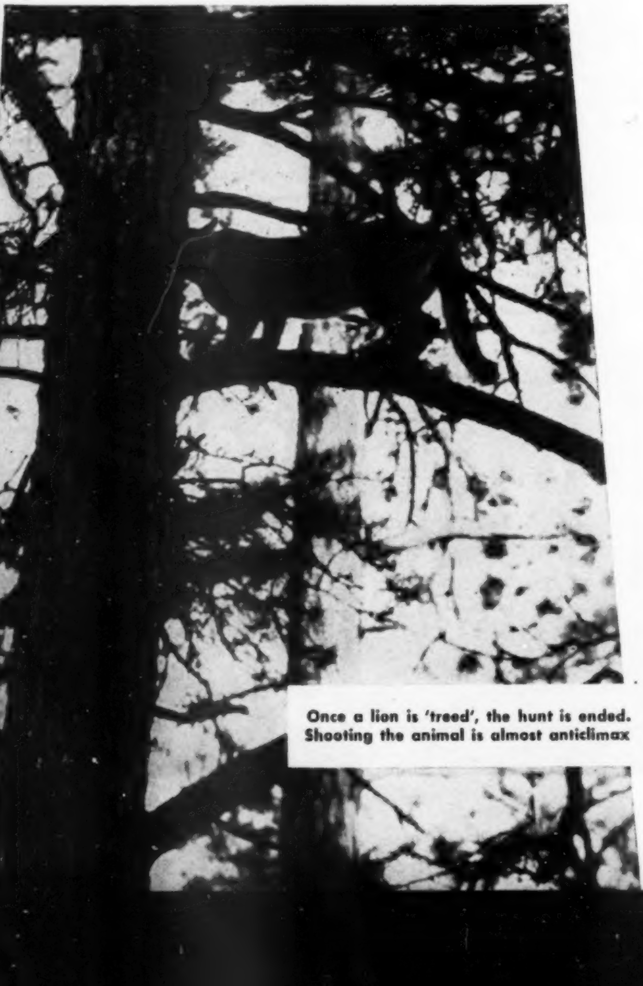
Good dogs that will work out a lion's scent are essential to a successful hunt, as are sure-footed, well-shod horses. Elliott Barker has used one or two airedales with a pack of hounds successfully

A mountain lion is extremely fast for a short distance but is short-winded. It will take to rough country or tree readily when closely pressed by a pack of dogs which he might easily whip if he chose to stop and fight.

The track, visible only in snow, mud, dust, or soft ground, is quite round and measures from two and one-half to four inches across. The hind foot is slightly smaller and not quite as round as the front foot. Its roundness distinguishes it from that of a dog, wolf, or coyote track, and unlike the claws of those animals, the mountain lion's retractile claws leave no imprint. The heel is divided into three definite lobes like that of a house cat and bobcat, but the print of it is too large to be confused with them. While the mountain lion has five very effective claws on the front feet, the dew claw, which is the largest, is high up on the inside of the foot; hence, only the imprint of four toe pads is seen in the track.

The scrape, which, except in very rare instances, is made by the male lion only, is the trail sign most readily observed by the hunter and most easily scented by the dogs. The scrape, or scratch, consists of tree needles, leaves, rotten wood, dirt, rubble, or other forest-carpet debris scraped up into a small mound. It is usually eight to ten inches wide at the base and from three to six inches high. It is made with heavy but short, backward, alternating strokes of the feet, leaving a dual dig on the front side of the heap. I am convinced the scrape is made by the hind feet, but some good lion hunters think it is made with the front feet. Apparently, urine is dropped at the spot where the scrape is made, and thus a scent station is established. Dung may also be found at the scrape. Many scrapes may often be found near a kill or where courtship of a female has taken place. The dogs will often pick up the lion scent at an old scrape and give tongue when they cannot possibly work out the track.

What about that 'blood curdling scream like that of a woman being beaten' which we so often hear about? Since I have never beaten a woman, I wouldn't know what her screams would be like. Neither have I, in many years spent in lion country under every conceivable circumstance, ever heard a lion scream. Others think they have, and many other good hunters say they haven't. Of those who think they have heard the scream in the dead of night, one might ask, "How do you know it was a lion and not a screech owl you heard?" Certainly they could not see the gaping jaws and heaving sides of the critter as he emitted that terrifying noise. But the argument goes on all the same.



Once a lion is 'treed', the hunt is ended. Shooting the animal is almost anticlimax

Mountain lions do have a get-together call, especially the females and the young ones, but it is more like a whistle or the very shrill mew of a house cat, and can't be heard by human ears for more than two or three hundred feet. When 'treed' or at bay, a mountain lion will open its mouth wide with nose in a snarl and emit a low, heavy, hissing sound, thus expressing his contempt of the whole situation.

Having learned just a little bit about mountain lions, their habits and habitat, let's make a quick trip into lion country and see if we can get in on a typical chase.

For several days you, your hunting partner, and your guide have ridden from dawn to dusk from the guide's mountain ranch in typical lion country without finding a workable track.

"Can't figger it out," says the guide, "but I know damn well if we pack back to Wild Horse Canyon them dogs'll find a long tail."

You came out for a lion, so you pack back and sleep in a tent. Next morning, before it is light, you are in the saddle again, speculating on what luck the day may bring and wondering why in thunder your saddle has the soft, wool-lined side next to the horse. The hounds are leaner, less enthusiastic, and more businesslike than on the first day out.

You ride for an hour up a steep, brushy, rock-strewn trail and, just as the welcome sun comes up, you top out on the rim overlooking Elk Creek. You are chilly, your seat is sore, and your legs chafed.

The guide studies the familiar ridges and gorges, trying to decide just which route offers the best chance for a lion track. The dogs have gone on over the hill sniffing and testing the ground and bushes here and there for the scent of a lion. The horses are puffing from the long, steep climb. You stiffly get off to tighten your saddle cinch like the guide told you, and ask your hunting partner, "Why in hell did we come on this hunt, anyway?"

But it was Buck, that big old red hound, not your partner, that answered you. "Woo-oo, woo-oo" came the long drawn out bellow from below the rim. You didn't know just what that meant but the guide did. Quickly remounting, he said, "Come on, I knowed old Buck would find a track."

Down under the cliffs the guide shows you a perfect lion scrape, verifying what old Buck had said. By now Lady and Drum are giving tongue as they slowly, yard by yard, work out the two-day-old track around the rough hillside. You marvel at the change that has come over the dogs, at their team work and obvious ability.

"Think we will get him?" you ask.

"The way them dogs is workin' and a talkin' and a waggin' their tails I reckon they think so," the guide jovially replies. Around that hillside for a long rough mile the pack leads you, then down into a deep side canyon, and up over the next ridge. So far you have been able to stay up with the guide and his hard-working dogs. Your interest in and respect for the dogs grow by the minute.

A bunch of mule deer jump from cover, bound off across a little draw, and turn to look. The dogs pay utterly no attention to them or the pungent odor of their fresh tracks. They are after a lion. You remark, "There's a mighty fine rack for a trophy on that old buck's head."

In making the kill, which is always done at close range, a heavy bullet load from a .45 handgun will do as well as a .30-30 or .32 Special Carbine

"Season's closed," says the guide. "Come back next year."

The track leads on up near the head of the rough, timbered canyon, then across it and doubles back on the other slope. Slowly, but surely, the pack works out the track, often sniffing at the scrub brush against which the lion's sides might have rubbed in passing. You are really enjoying the canine music as you learn to distinguish one voice from another. But the trail is still cold. So far it hasn't been hard to keep up, as the guide had said it would be, even in this rough country.

"Think they will ever catch him at this pace?" you ask.

"Reckon not, but they are mighty apt to whip up."

You start to ask for further explanation and then, of a surprising suddenness, first Lady, then Drum, then old Buck, change the tone, tempo, and spirit of their baying. You know instinctively something important is happening. Your guide lopes his horse up the hillside to the thicket where the dogs were. You follow but can't keep up. In the thicket your horse spooks at something and you see your first lion kill. About all you can see is a set of big mule deer antlers and a pile of tree needles freshly heaped up over what's left of the carcass.

The guide yells impatiently, "Come on, damn it. If it's a lion you want, we've jumped him!"

Already the dogs have gone out of hearing over the hill. Your guide is hot after them. When you finally get to the top, the dogs are to-hell-and-gone across the next deep canyon. The guide yells back from way down below, "Keep a comin' fast as ever you can."

For a moment you listen to the incomparable music of the three dogs as they race on the fleeing lion's trail up the opposite hillside. You see that the steep slope is rougher than anything you have yet tackled. How will you ever make it?

Then the music suddenly changes again to louder, sharper, excited, staccato barking and you know it's as the guide said it would be when the dogs bark 'treed'.

You and your partner throw discretion to the wind. You break off an aspen limb for a quirt and make your horse tear off down the rocky hill like mad. You don't pay much attention to where you are going and get into some awful thickets and rock slides. You know you've got a bruised knee and lost your hat, but in the excitement you don't give a damn.

You cross the canyon and head up that awful, steep, rough hillside toward the distant sustained barking on top of the ridge. At last you can see the guide sitting there on his sweat-drenched horse, a hundred feet from the big fir tree up which the dogs are barking. Your partner is still far down in the canyon. Your guide motions you to come around back of him, and when you get there you get your first glimpse of what the dogs are barking at.

Lying awkwardly across one big limb, with hind feet braced against another a bit lower down, and long tail hanging down through the branches, a beautiful, tawny, round-headed male lion is panting from the long run in his unsuccessful attempt to evade his traditional enemies. He opens wide his huge jaws and hisses at you, the dogs, and the situation in general.

You want to get some pictures but discover you have lost your camera, damn it. Then you get your new .270 scope-equipped rifle to administer the coup de grace.

When you draw the bolt back to put a cartridge in the chamber, guide says, "Better wait till you quit that shakin'. Anyhow the other feller might want to see that old lion, too, and he ain't a goin' no place."

While you wait and try to relax, you take stock of the situation. You've got saddle sores all over your seat, your legs are chafed, your pants are torn beyond mending, your left knee is bruised, the skin is scraped off your right shin, you have lost your hat and your new camera, your hands and face are scratched. You wonder if you will ever be like your old self again. You mumble to yourself, "And just think I'm paying for all this."

Your partner, who lost the first day in the flip of a coin to see who would shoot the first lion, comes up at last and gets an eye full of 'treed' lion. When you raise your rifle, guide says, "Miss him or kill him clean. I don't want to get them dogs cut up."

At the crack of the rifle, old long tail slides slowly off his perch backwards and you realize that shooting him was anticlimax. The dogs pounce onto the lifeless body and wool it off down the hill, satisfied with this reward for their hard work.

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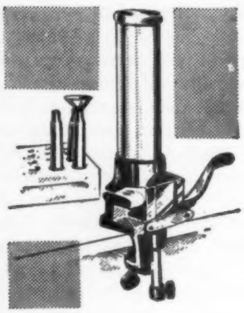
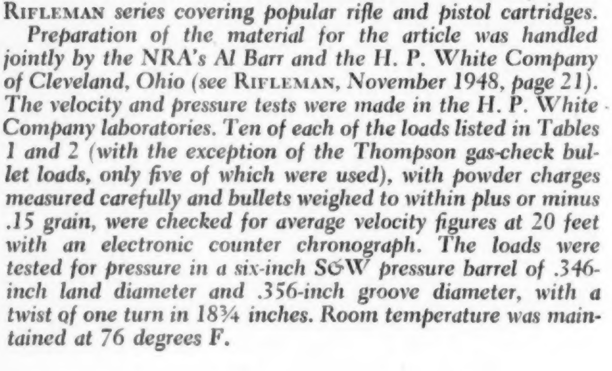


.38 SPECIAL LOADS

This article on .38 Special loads is another in an important Rifleman *series covering popular rifle and pistol cartridges.*

Preparation of the material for the article was handled jointly by the NRA's Al Barr and the H. P. White Company of Cleveland, Ohio (see Rifleman, *November 1948, page 21). The velocity and pressure tests were made in the H. P. White Company laboratories. Ten of each of the loads listed in Tables 1 and 2 (with the exception of the Thompson gas-check bullet loads, only five of which were used), with powder charges measured carefully and bullets weighed to within plus or minus .15 grain, were checked for average velocity figures at 20 feet with an electronic counter chronograph. The loads were tested for pressure in a six-inch S&W pressure barrel of .346-inch land diameter and .356-inch groove diameter, with a twist of one turn in 18¾ inches. Room temperature was maintained at 76 degrees F.*



The measurements shown in the drawing of the .38 Special cartridge are averages of measurements made on ten different factory cartridges

As a result of experience in the Spanish-American War and in the Philippine Insurrection of 1899 to 1902, the United States Army desired a more powerful revolver cartridge than the existing .38 Long Colt then used in Colt and Smith & Wesson service revolvers. It was apparent that a cartridge of greater stopping power was in order.

Daniel B. Wesson, president of Smith & Wesson, was convinced that a suitable cartridge could be developed in .38 caliber, and he set about the experimental work which culminated in the cartridge that we today call the .38 Smith & Wesson Special. The new load differed from the old .38 Long Colt in the following respects: It had greater muzzle velocity due to the three-grain increase in weight of the black powder propelling charge; and the close-fitting flat-based bullet weighed eight grains more than the old heel-type bullet.

In spite of the .38 Special's greater punch and accuracy, the Army had firmly set its development specifications for a larger caliber weapon. However, in 1902 the .38 Smith & Wesson became available commercially to the public when the Smith & Wesson Military and Police revolver, Model 1902, was introduced. The cartridge gained almost immediate acceptance from the general public, and its popularity led the manufacturers of Colt revolvers to chamber their weapons in .38 Special caliber as well. In 1909, there appeared the .38 Colt Special cartridge, which was identical to the Smith & Wesson except for bullet shape. The Colt cartridge had a flat-nosed bullet. Today both cartridges are cataloged together under the same name—.38 Special. The Colt cartridge is called the .38 Special, Flat Point.

From time to time there have been variations of bullet shape and powder charge in the .38 Special, but no startling changes were made until 1930. In April of that year, Smith & Wesson introduced their .38/44 revolver, a heavy-duty .38 on a .44 frame, which should not be confused with the older Model No. 3 single-action .38-44. The newer .38 Special cartridge, representing a definite trend toward the high-pressure, high-velocity cartridges, should not be used in the older type guns, as they are designed for use only in modern guns of the .38/44 type.

The .38 Special, which is manufactured in practically every country of the world, is without doubt the most popular handgun cartridge in the United States today. Because it is so popular, the .38 Special is probably handloaded more than any other handgun cartridge. The .38 Special is the main standby for all center-fire handgun match shooting in which the revolver is permitted. It is no doubt one of the most accurate—if not the most accurate—center-fire handgun cartridge available, although the case was originally designed for a rather large charge of black powder and has, therefore, excessive case capacity for the small charges of smokeless powder which are favorites in target shooting. Naturally, the lightest load which gives fine accuracy is desirable in match shooting so that the revolver may be controlled during timed- and rapid-fire stages.

The standard .38 Special load uses a 158-grain round-nose lead-alloy bullet. It does not actually give as good accuracy as do the true wadcutter loads. One of the most accurate .38 Special loads for target shooting is a 146- to 150-grain wadcutter seated with about 1/16 inch of the sharp shoulder exposed at the case neck, the same type load as the commercial midrange wadcutter load which develops around 770 feet per second velocity. A charge of 2.7 grains of Hercules Bullseye may be used with most any wadcutter bullet having a seating depth of between .45 and .50 inch. As will be noted in load 1 of Table 1, the charge just about duplicates the factory midrange load, which is one reason it has been so popular with handloaders. An equivalent load is load No. 6 of Table 1, using 3.2 grains of the new No. 5066 powder. No. 5066 powder, somewhat similar to Pistol Powder No. 5, does not always burn as cleanly and as uniformly in a light charge as the slightly faster-burning Bullseye. Another load which will

Table 1: Pressure and Velocity for Standard .38 Special Loads

Load	Weight (grains)	Bullet Type	Bullet Diameter (inch)	Seating Depth (inch)	Powder Charge (grains)	Powder Type	Lot No.	Primer	Case Make	Velocity	Velocity Extreme Variation	Pressure	Remarks
1	148	Ideal 358395 Wadcutter	.358	.475	2.7	Bullseye	....	We. 1½	Western	761	65	......	Very accurate
2	146	H&G 50 Wadcutter	.358	.475	3.0	Bullseye	....	We. 1½	Western	861	29	9,280	Target load
3	161	Thompson 358156 GC	.357	.385	3.3	Bullseye	....	WRA 108	Western	825	39	8,080	Accurate
4	146	H&G 50 Wadcutter	.358	.475	3.6	No. 6	9C	We. 1½	Western	971	55	12,070	Accurate
5	141	H&G 61 Wadcutter	.357	.450	4.0	No. 5	42C	We. 1½	Western	970	91	13,710	Accurate
6	148	Ideal 358395 Wadcutter	.358	.500	3.2	5066	3	We. 1½	Western	768	69	......	Target load
7	144	H&G 61 Wadcutter	.357	.450	4.0	5066	3	We. 1½	Western	980	36	13,340	Near maximum
8	161	Thompson GC	.357	.385	4.8	5066	....	WRA 108	Western	945	42	14,200	Near maximum
9	155	Ideal-Keith 358439	.358	.375	5.2	Unique	....	We. 1½	Western	1006	57	10,090	Good load
10	161	Thompson 358156 GC	.357	.385	5.2	Unique	....	WRA 108	Western	972	46	9,740	Accurate
11	85	Cramer 9-358 Zinc alloy	.358	.300	7.0	Unique	....	We. 1½	Western	1429	54	13,970	Small game
12	162	Bond-Ness 358755	.358	.400	10.5	4759	2C	We. 1½	Western	1044	41	13,144	Near maximum
13	148	Commercial midrange wadcutter	....	....	....	....	....	....	....	732	67	10,070	Very accurate
14	158	Commercial standard load	....	....	....	....	....	....	....	864	37	13,460	Good accuracy

duplicate the velocity of the factory load is 3 grains of Pistol Powder No. 6. These three loads, using the full wadcutter bullet, are about all anyone would need for match shooting.

There are a number of full wadcutter bullets available such as the Ideal 358395, which is a hollow-base bullet weighing 148 grains. The Hensley & Gibbs No. 50 bullet, with three small lubricating grooves, and the No. 61 bullet, with two wide lubricating grooves intended expressly for tight Colt revolvers, have proven very accurate with 3 grains of Bullseye for heavier loads for 50-yard shooting. These two, our favorite loads, have been proved superbly accurate in most good handguns by many machine rest groups. The Cramer No. 16-A full wadcutter will work equally well with these suggested loads. There are, of course, many other types of wadcutter bullets, but those listed here have proven very accurate and are favorites among the best of target shooters. Some handguns will handle the Ideal 360344S bullet, which is a true wadcutter, with about two-thirds of the bullet seated in the cartridge case. For some reason, we haven't had as good accuracy with this particular Ideal bullet as we have with other wadcutters seated deeper in the cartridge case.

When handloading light loads for target shooting, bullet crimp is extremely important. It must be uniform and relatively heavy, with the mouth of the case folded firmly into the crimping groove. Seemingly the bullet doesn't have to be an extremely tight fit in the cartridge case so long as uniform crimp is maintained. The only way to maintain uniform crimp is to use cartridge cases of exactly the same length. It is almost obvious that variation in case length will cause a variation in case mouth crimp. The length of the .38 Special case is 1.115 inch.

If only one die is available for sizing bullets to be used in both Colt and Smith & Wesson handguns, the die should size the bullets to .358-inch diameter. Some of the S&W handguns, especially older ones, have slightly oversize groove diameter and require .359-inch diameter bullet. Some Colt revolvers are seemingly rather tight in the groove and frequently a bullet sized .356 to .357 inch is desirable. When heavier hunting loads are used, the .357-inch diameter bullet is about the best that can be had.

Cases should be sized with a case mouth expander adequate to bell out the case mouth so that lead will not be shaved from the sides of the bullet in seating it. If lead is shaved from the bullet as it is seated in the case, it is advisable to chamfer slightly the inside of the case mouth or to use a slightly larger inside expander. Most .38 Special case-sizing dies are made to bell out the case mouth slightly to avoid the possibility of shaving lead and distorting the bullet.

Many .38 Special cases are cannelured largely for identification purposes. Some have a cannelure about two-thirds of the way from the base of the case, which identifies them as being loaded originally with a shallow-seated round-nose lead bullet. Cases with a cannelure farther down, or about one-half inch from the mouth of the case, indicate an original loading with a deep-seated wadcutter. If you desire to load with wadcutter bullets, it is advisable to use those cases which were originally loaded with wadcutter bullets. When the wadcutter bullet is seated in cases having the cannelure near the case mouth, the base may be distorted because even the best of sizing dies and expanders cannot iron out all of the cannelure which projects inside of the case.

In selecting cast bullets for handloading, they should be inspected very carefully, especially the bases. Many times there are air holes in the base of cast bullets, and a machine rest test will show that bullets with air holes in them are not accurate, regardless of the load one uses.

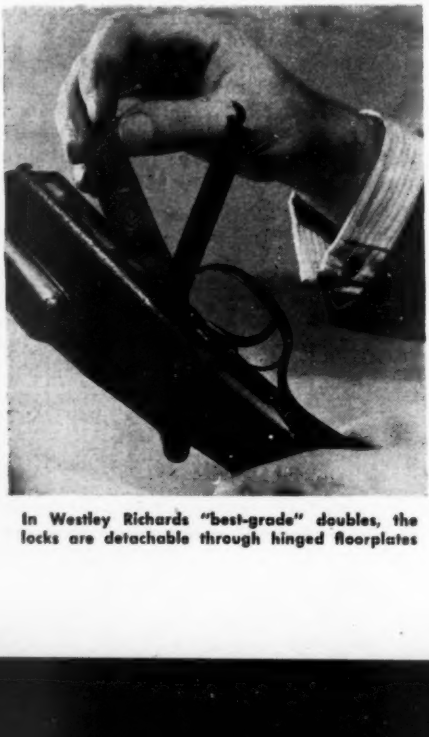
In addition to its use in target shooting, the .38 Special, especially in the heavy-frame revolvers, can be loaded as a powerful cartridge for defense purposes, and can even be used for short-range varmint shooting. The most popular style of bullet for either of these uses is the so-called semi-wadcutter, and several good ones have been de- *(Continued on page 47)*

Table 2: Pressure and Velocity for .38-44 Loads

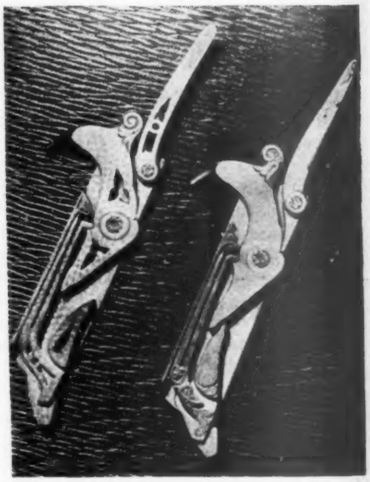
Load	Weight (grains)	Bullet Type	Bullet Diameter (inch)	Seating Depth (inch)	Powder Charge (grains)	Powder Type	Lot No.	Primer	Case Make	Velocity	Velocity Extreme Variation	Pressure	Remarks
1	162	Bond-Ness 358755	.358	.400	5.0	5066	3	We. 1½	Western	1040	46	19,500	Good load
2	146	Thompson GC HP	.357	.385	6.4	Unique	....	WRA 108	Western	1154	53	14,680	Good load
3	161	Thompson GC	.357	.385	11.0	S'shooter	....	WRA 108	Western	1133	45	15,700	Hunting load
4	146	Thompson GC HP	.357	.385	11.5	S'shooter	....	WRA 108	Western	1210	94	16,640	Hunting load
5	151	Ideal-Keith 358431	.358	.350	12.0	2400	....	We. 1½	Western	1228	105	22,670	Hunting load
6	155	Ideal-Keith 358439	.358	.375	12.5	2400	....	We. 1½	Western	1263	87	21,540	Hunting load
7	146	Thompson GC HP	.357	.385	13.5	2400	....	WRA 108	Western	1227	49	16,480	Hunting load
8	161	Thompson GC	.357	.385	13.5	2400	....	WRA 108	Western	1220	51	19,660	Hunting load
9	85	Cramer 9-358 Zinc	.358	.300	15.0	2400	....	We. 1½	Western	1520	44	16,960	Small game

FIRE-ARMS
OR BARRELS
LOADED

As one of the final steps in the production of a Westley Richards gun, the barrels are fired with overloads in the famed Birmingham Proof House. If no trouble develops, barrels are then stamped with proofmarks (see page 30)

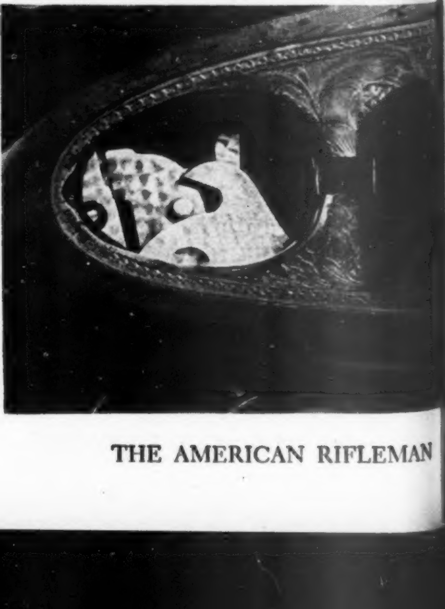


In Westley Richards "best-grade" doubles, the locks are detachable through hinged floorplates



These deluxe locks were ornamented and gilded on order of Eastern potentate

Another deluxe feature of best Westley weapons is this selective single-trigger mechanism, which can be inspected through engraved trapdoor in gun's sideplate



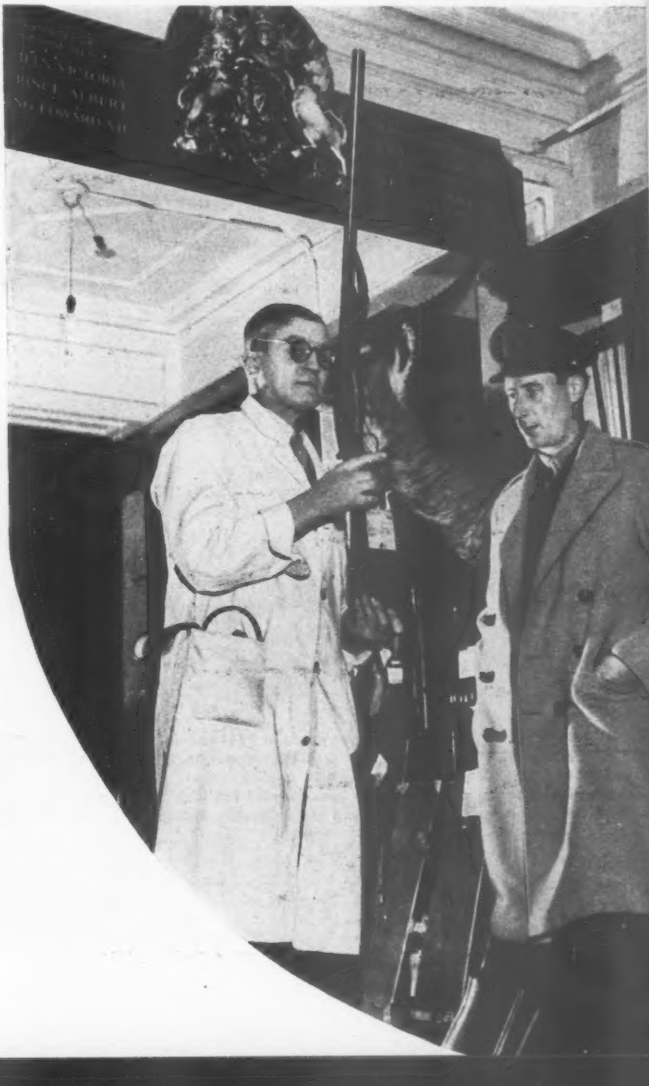
For those who can afford them, England still produces the finest sporting arms in the world. Photographs for the AMERICAN RIFLEMAN *by Sid Latham*

The Birmingham "Trade"

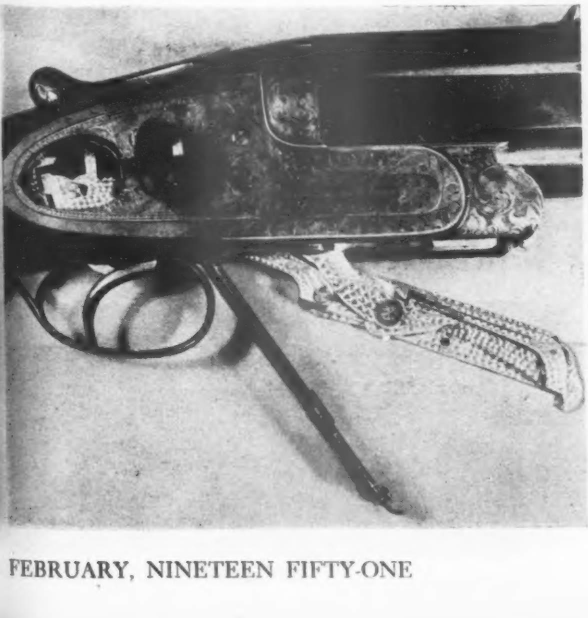
UNLIKE the highly competitive industry which annually turns out hundreds of thousands of firearms for American sportsmen, the British gun trade is still a luxury business catering to a few who can afford the best. In Birmingham, center of "the trade", superb firearms are produced with the same skill and patience that went into the products of a century ago. Painstakingly filed out by hand, with a sense of craftsmanship unequalled elsewhere in the world, the best rifles and shotguns of Westley Richards, James Purdey & Sons, and Holland & Holland are without much question the finest firearms made in the world today (and the most expensive!).

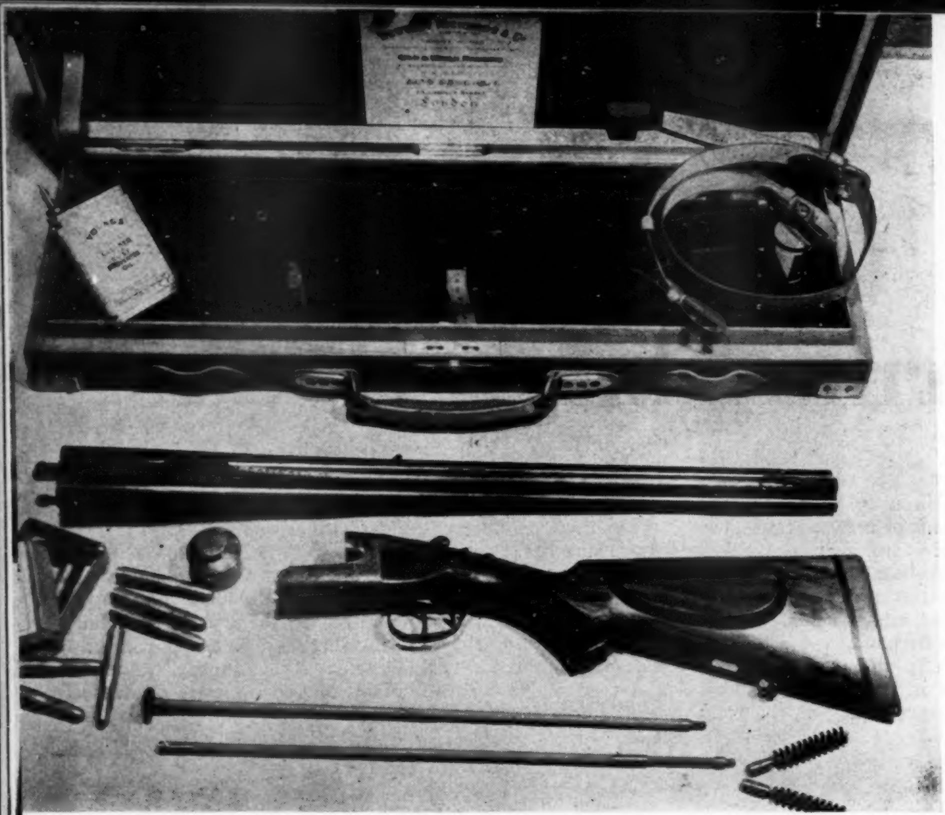
For this "conducted tour" of the Birmingham trade, the RIFLEMAN has selected the firm of Westley Richards as representative of the best among British armsmakers. Established in Birmingham in 1812, they have for decades enjoyed the patronage of the royal family. As well known for their fine big-game rifles as they are for shotguns, Westley Richards today caters to a clientele able to pay for handmade, engraved, and even gilded firearms, many of them custom made for India's princes—as a group, the wealthiest men in the world.

London showroom of Westley Richards. Edward Grey, himself an ardent big-game hunter and African veteran, shows a second-hand gun to a British officer. Coat of arms indicates patronage of Westley firm by royal family

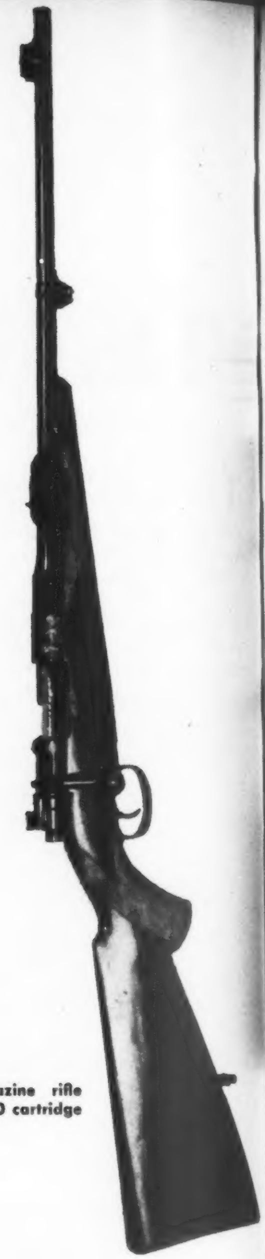


Mainly on order for Indian princes, Westley Richards produces over-and-under double rifles like the one shown here and in the photographs opposite. Note deluxe features: selective single trigger with mechanism visible through trapdoor, detachable locks. Caliber of this double rifle is .425 Magnum

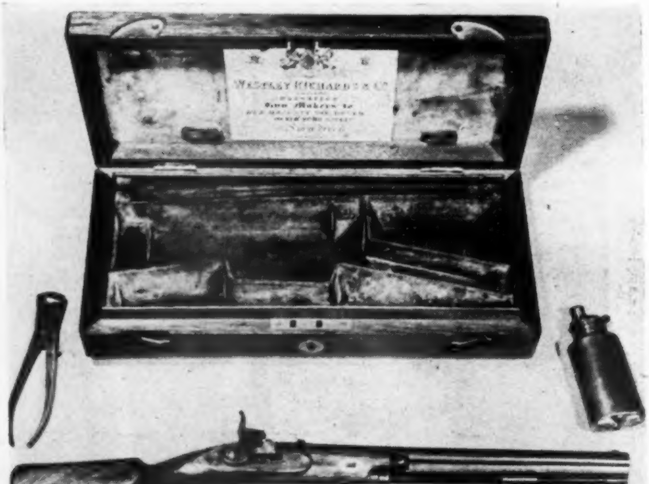




A "best quality" Westley Richards double rifle in .425 caliber, complete in case with equipment. This rifle has a standard 100-yard rear sight with extra spring leaves which may be raised for ranges up to 500 yards. Actually, heavy double rifles like this are rarely used at ranges exceeding 75 yards. Cost of rifle complete is just under 320 English pounds



Westley Richards magazine rifle chambered for .250-3,000 cartridge



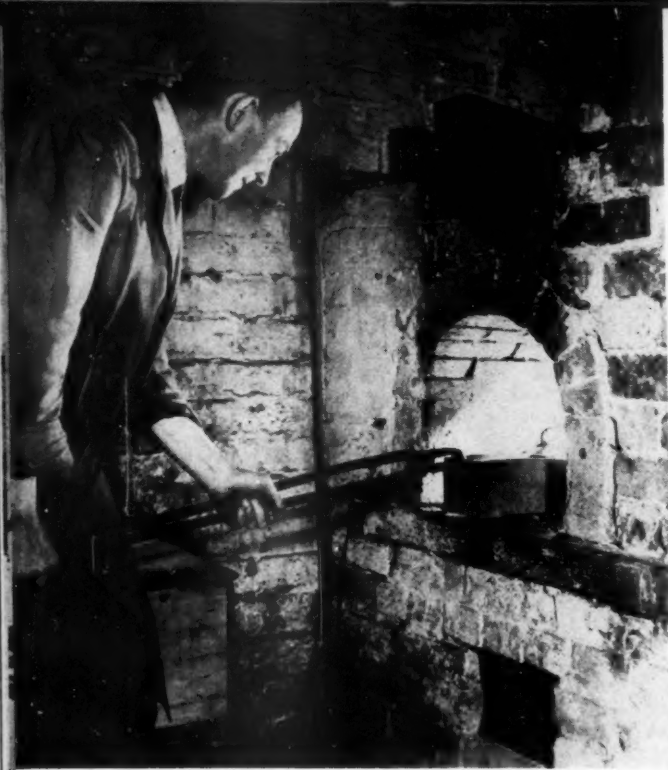
This tiny arm, 15½ inches long, was made in 1844 for the American midget, General Tom Thumb. He was then appearing in England with Barnum & Bailey's circus. The gun is .410 caliber, and has an effective range of 24 yards. The grandson of the man who made the lock of this gun is still employed in the Westley Richards factory

Above rifle, taken down and in case. Price is 97 pounds

Stockmaker H. Payne has been in the employ of Westley Richards since he was sixteen. Here he roughs out a gunstock blank to measurements obtained with "try gun" which is used in fitting customer at Westley's shooting grounds. Mr. Payne's father, now dead, was foreman of factory and designed over-under rifle

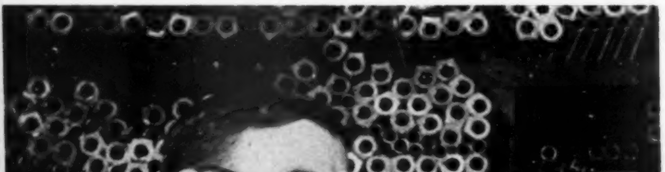
Working parts of gun actions are made and assembled in this shop. 'Actioner' H. Vale, who has been with the firm for 38 years, is shown working at his vise which is fitted with lead jaws so parts will not be marred. Note disorder of the bench

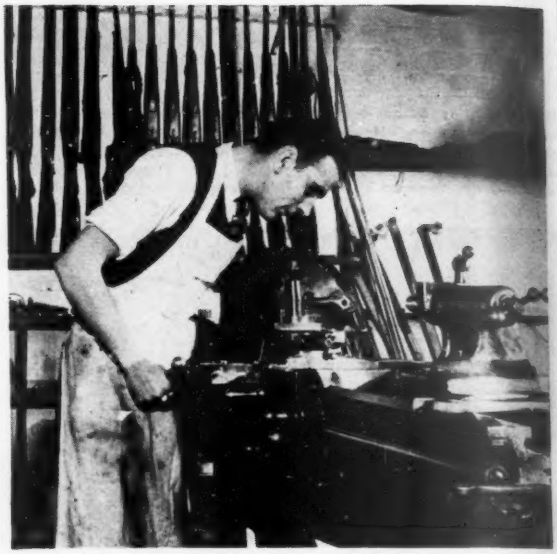
'Jointing' is important stage in assembly of a fine shotgun or double rifle. Here jointer A. Campkin blackens the breech end of a pair of barrels with a smoke lamp. When action is closed high spots will show through coating of carbon



Gun parts are hardened by burying in bone dust and then bringing to exactly the correct temperature. This is one of the most critical operations in gunmaking. Improperly hardened parts will break if allowed to become too hard, and wear excessively if too soft. After hardening, parts are polished

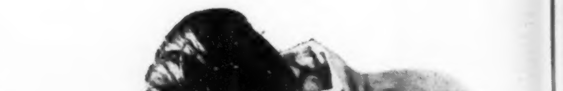
Rough barrel tubes of various types are arranged in racks in the Westley Richards' Birmingham factory. Turning these rough tubes into finished gun barrels is almost entirely a hand process, accomplished with a minimum of tools. Here breech end of double-gun barrels is being 'regulated'





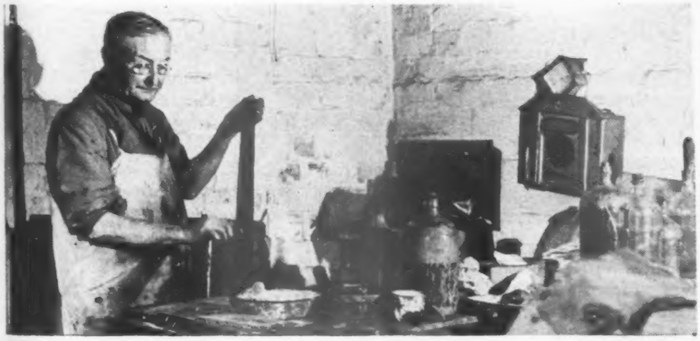
Despite the apparent lack of machine equipment in the Westley Richards factory, work is held to minute tolerances. Main difference between English and US methods is that American parts are interchangeable, while English parts are individually hand fitted for each gun. This small lathe is in the rifle shop

One of the younger employees, J. Baker is a barrel borer with only two years service. He is shown setting up a pair of barrels on the 'spill-boring' machine. The spills are long boring tools, one if which is being aligned within the clamped barrel



C. Banner (above) has engraved guns for Westley Richards for thirty-seven years. Here he cuts scrolls on the sides of an action body being engraved for an Indian prince. Both Banner and his son, also a Westley employee, engrave 'freehand', without the use of patterns

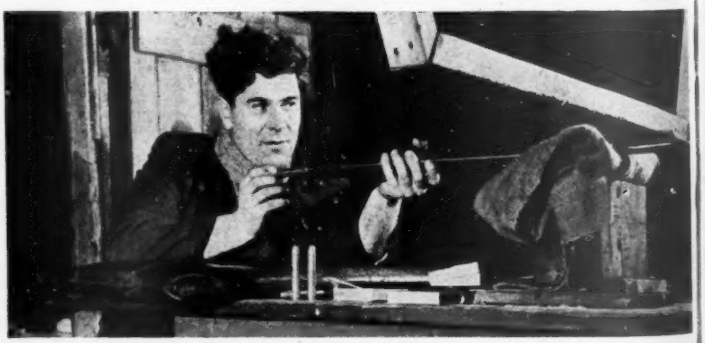
Barrel filing and 'regulating' is another critical operation in the production of a double gun. Here barrel filer J. Bates, who has had a lifetime of experience in the Birmingham gun trade, adjusts double rifle barrels so bullets from each will land on the same spot



In keeping with the painstaking methods employed by Westley Richards employees, barrels are still 'blacked' by hand. Repeated applications are necessary to achieve the rich color characteristic of fine Westley weapons

Time out for afternoon tea in shop number two. Each of these men is a highly-trained specialist, and most have spent many years in trade

S. Tansley (above) is head of the Westley Richards repair department, and also carries out the duties of factory inspector. At 51, he is a veteran of thirty-seven years service in the factory. Here he checks a pair of double guns for exact balance before they are delivered



In addition to proof tests required by British law and made at the Birmingham proof house, guns are tested at the Westley Richards factory. Here a .577 caliber double-barreled rifle is fired from a bench rest on the factory range

Marshall Coulter, inspector in charge of the Birmingham proof house, impresses the Birmingham proof marks on the barrels of a Westley Richards double gun. These marks signify that the barrels have been tested with overloads, and are free of defects

Which Wildcat?

Are shooters justified in their claims that one wildcat is inherently more accurate than another? Here is the result of a comparison of the Wasp, Improved Zipper and .22-250

By BILL CORSON

AT THE BEGINNING of 1948, a number of us shooters belonging to a club in the Los Angeles area organized a kind of group-shooting meet. We enjoyed the shooting so much that we've been doing it monthly ever since. At first we used a weird assortment of guns of all weights and calibers. Then the rim-fire and most of the big-bore shooters dropped out or bought high-speed .22's, principally .22-250's. Groups became smaller and arguments hotter as to which was the best varmint and bench-rest caliber.

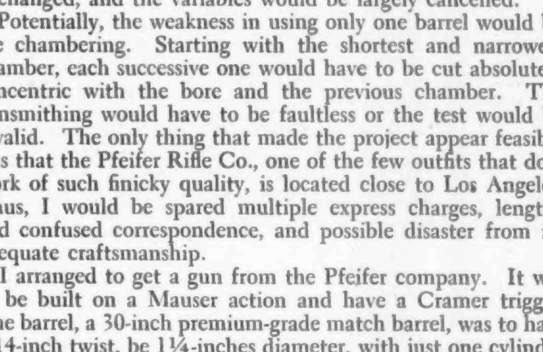
At that time, in common with, I suppose, thousands of other shooters around the land, we were being increasingly fascinated by the golden legends of the mighty .219 Wasp which had reared its invincible head in the East. In fact, reports of its performance were making us neurotic. Any day that one of our boys pitched a quarter-inch group, even testing, we rolled out the keg and fired skyrockets, yet we avoided looking each other in the eye. Our childish glee was diluted by the knowledge that our pathetic ¼-inch group would be a source of merriment to the bench-rest paladins in the big Eastern shoots. We rationalized that our constant fish-tailing winds and heavy mirage over glaring bare soil would make those guys look pretty silly, too, but it didn't really convince us.

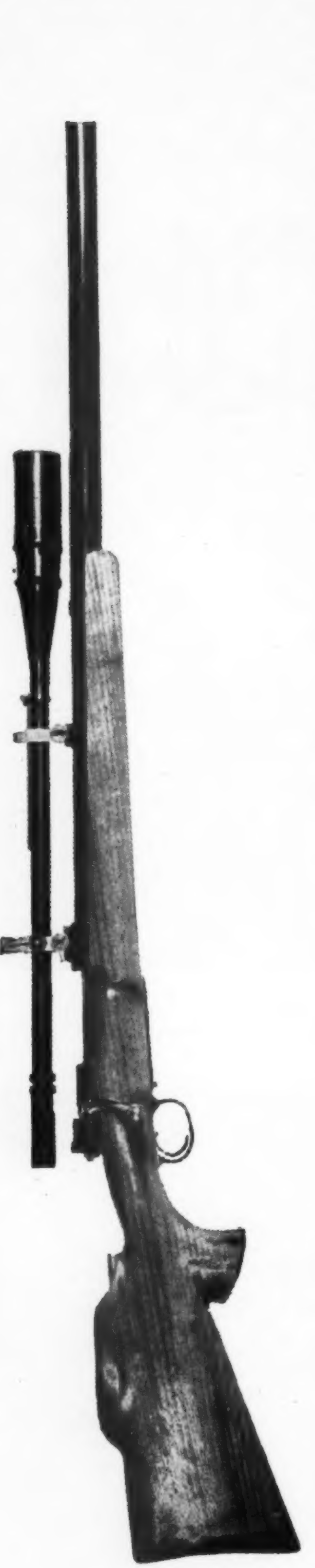
It was tough. A few of the weaker characters cracked and put in orders for Wasps, and immediately their eyes cleared and they began to swagger around and ply their old .22-250's with the air of men slumming for laughs while their country estates were being landscaped. Several surly iconoclasts said a .22-250 would do anything that any other bench-rest gun would do. The rest of us just shot and nursed our inferiority complexes.

For peace of mind, it became necessary to find out if any one caliber really was inherently more accurate than its competitors. The leading rivals were conceded to be the Wasp, the Improved Zipper, and the .22-250, but, obviously, shooting guns of these calibers against each other would give no definitive evidence. Too many variables, such as bedding, weight, barrel vibrations, bore finish, and quality of steel and gunsmithing would be involved. The solution appeared to be to test successively all loads in chambers in the same barrel. Barrel length, bedding, and other details would thus remain unchanged, and the variables would be largely cancelled.

Potentially, the weakness in using only one barrel would be the chambering. Starting with the shortest and narrowest chamber, each successive one would have to be cut absolutely concentric with the bore and the previous chamber. The gunsmithing would have to be faultless or the test would be invalid. The only thing that made the project appear feasible was that the Pfeifer Rifle Co., one of the few outfits that does work of such finicky quality, is located close to Los Angeles. Thus, I would be spared multiple express charges, lengthy and confused correspondence, and possible disaster from inadequate craftsmanship.

I arranged to get a gun from the Pfeifer company. It was to be built on a Mauser action and have a Cramer trigger. The barrel, a 30-inch premium-grade match barrel, was to have a 14-inch twist, be 1¼-inches diameter, with just one cylindrical cut on its outside diameter to remove the mill scale, then a ground finish. After manufacture the barrel was perfectly straight and slick as glass inside, which promised freedom from





fouling that might have bollixed the deal good. Groove diameter was 0.2238 inch.

The first chamber, for the .219 Wasp, was cut with with "Red" Elliott reamers, dial indicated, as were all the chambers. The barrel threading was a most exacting (Class-4) fit. The barrel was installed under a torque reading of 150 foot pounds. The stock, a Pfeifer production grade bench-rest job, was structurally sound and accurately inletted—it didn't have to be fancy-figured. A borrowed 12X Unertl scope completed the outfit.

The next important item was ammunition. New Winchester cases were cut to accurate Wasp dimensions and expanded with mild loads. At that time, it was generally conceded that the RCBS hand-made bullets were the best to be had, so I obtained a set of Huntington's bulletmaking dies and a core-swager — and have been thoroughly pleased ever since. The dies produced 7-S bullets of 0.2236-inch diameter. It pleased me also to reflect that they were costing only about 65 cents a hundred. Preliminary testing, brief to spare the barrel, seemed to indicate that a 55-grain hollow-point bullet with 0.735-inch jacket was the most accurate, though subsequent testing forces me to conclude that I'd have done better with 0.705-inch jackets. The leading commercial makes of bullets used in competition with my RCBS bullets did not perform as well, for me, after several careful tries.

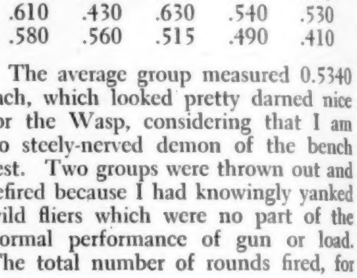
Back to the experiment. Shooting was done with sandbags fore and aft. I wasted 60 rounds frantically trying to make the Wasp group, before I discovered that the borrowed scope was festooned with loose screws. Correcting the trouble, I started hunting loads. I could not go through the entire gamut of possible primer-bullet-powder combinations or the gun would have been worn out before I was started. I used Winchester 115 primers and 55-grain bullets, and made up loads with both 4895 and 3031 powders. The gun behaved better with 28 grains of 4895, and was erratic with 3031. That was that. It is conceivable that I did not find the best possible combination in any of the loads.

The stock had been made full-floating so I could tinker. When the rifle was first fired, it behaved fairly well but gave some fliers. Plastic Wood and a cardboard strip under the fore-end tip of the barrel ended the fliers. And since a tight rubber band around the barrel and stock at that point shrunk the groups, a barrel band was applied. The gun was very sensitive to barrel band pressure. Loosening the screw one-eighth of a turn from optimum opened groups badly. That was the end of bedding research.

For official testing, I fired 25 five-shot groups. I had to sneak in an hour here and two hours there, loading and shooting at the range in the infrequent intervals when wind and mirage were at a minimum. At least there was none of the nervous strain of competition. The 25 groups ran as follows, in inches:

.400	.600	.685	.590	.600
.510	.755	.455	.320	.480
.480	.470	.570	.505	.635
.610	.430	.630	.540	.530
.580	.560	.515	.490	.410

The average group measured 0.5340 inch, which looked pretty darned nice for the Wasp, considering that I am no steely-nerved demon of the bench rest. Two groups were thrown out and refired because I had knowingly yanked wild fliers which were no part of the normal performance of gun or load. The total number of rounds fired, for all reasons, silly and otherwise, was 330, excluding mild forming loads. Then the gun went back to the Pfeifer Company to be converted to the next chamber.



Anent triggers: Previously I'd always thought I liked a crisp trigger of around three pounds weight. Before I finished shooting the Wasp, I knew I was wrong. I'd left the Cramer trigger at 3½ pounds, and the heavy pull was a definite handicap that couldn't be altered in fairness to the Wasp. A heavy trigger is not good on the bench!

With the Improved Zipper chamber, I went back on the range again. Plastic and cardboard bedding were unchanged, and the barrel-band screw was set to the same tension reading. Being much longer than the Wasp, the Zipper chamber had a new throat, in effect. It started out fine, giving some excellent groups while blowing out 50 new standard Zipper cases to the 'improved' form with mild loads. Again, the gun behaved better with 4895 powder, unlike two Improved Zippers I've previously owned. A load of 31 grains seemed to beat out 27½ grains by a narrow margin. The weeks drifted by and I finally collected enough hours of good weather to finish the testing. The 25 groups measured, in inches, as follows:

.540	.630	.560	.700	.425
.560	.505	.610	.450	.815
.625	.400	.495	.560	.500
.360	.620	.500	.515	.340
.510	.500	.370	.410	.540

These figured out to a 0.5216-inch average group diameter. It is a surprising figure, in that it is only 0.012-inch different from the Wasp, well within the bounds of experimental error. In looking over the two averages, there was no significant difference at all, no reason to choose one over the other.

Thirty rounds had been wasted one morning before sunrise checking the cause of wild groups. I found that the cold wet mist blowing on the range had swelled the cardboard under the fore-end, and possibly the stock too, and had deranged the bedding. Shooting in such weather was discontinued and the wild groups were re-fired. Adding load-testing, official testing, and a few groups fired in two bench-rest meets, the number of rounds fired came to 605, excluding case forming. There was no erosion visible in the barrel other than a frosty appearance in the throat such as the Wasp had left.

The next chamber, the .22-250, was a little longer than the Improved Zipper, and larger in diameter. The Pfeifer people cleaned up the throat enough to give the caliber an even start, however. Again, on the range the gun performed better with 4895 powder. Groups were good with loads of from 31 grains to 36 grains, but were best with 34 grains. One morning 35 rounds were wasted before I found that I'd loonily switched powder cans and was throwing charges of 3031 instead of 4895. The test groups, in inches, ran:

.460	.350	.520	.515	.510
.520	.600	.520	.610	.520
.630	.420	.620	.405	.460
.430	.530	.470	.725	.540
.545	.460	.835	.395	.460

The average of group measurements was 0.5220 inch.

Testing was finished with 865 rounds fired, excluding 100 forming loads and including seven groups re-fired for known bad let-offs. (Note: no attempt was made to measure groups within less than 0.005 inch.)

Now the alibi run. I got none of the microscopic groups we read about, nor did I expect them, since I took none of the fanatic pains required for such results. One Wasp load-testing group did measure 0.205 inch. Of the official 75 groups, 64 had four shots grouped between 0.420 inch and 0.125 inch, which impressed me.

In the loading, all powder charges were thrown from an ancient Belding & Mull measure; none were weighed. None of the RCBS bullets were weighed, miked, or inspected — they were used as they came off the dies, which still look new. (An RCBS 'core extruder' was obtained in time to save me the onerous job of weighing lead cores, and did a remarkably even job, seldom producing deviations as great as 0.1 grain.) Loading dies, except for the Wasp, were borrowed. No cartridge cases were selected. Subsequent testing showed that the bedding was never quite right. Attention to all these factors would obviously have improved results, I know, but time was lacking.

The point is, while efforts were not made to obtain the maximum possible accuracy out of any one chamber, efforts were made to give each chamber the same treatment for a fair comparison. The results obtained, considering my holding and other adverse factors, leave scant room for doubts as to the quality of the barrel and the fine mechanical exactness from chamber to chamber of the gunsmithing. The bullets, from the same lot of cores and jackets, were obviously extremely uniform and stable. These premium barrels (mine gave a Rockwell reading of 28-C) have been giving fine target accuracy with hot loads in high-speed .22's for well in excess of 1,200 rounds. Since no other significant variables are known to have been present, it seems that each caliber did get a square shake and the comparison is fair.

The amazing closeness of the averages must, I think, be considered coincidental. I would not expect quite such closeness on a repetition of the experiment. However, considering the room for experimental error, I believe any significant figure of superiority in the averages would have to be at least 10 percent, around 0.050 inch and probably more. It is, fortunately, an academic consideration here.

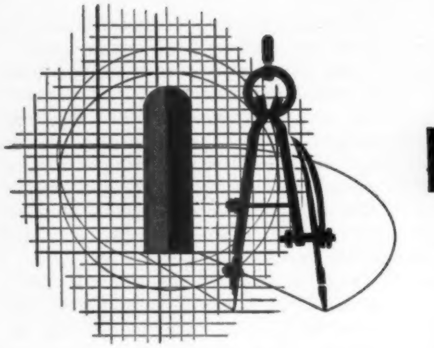
Conclusions. First, I see no indication that any one of the chambers tested has the slightest edge in inherent accuracy. Second, by extrapolation, it is to be suspected that no material difference in accuracy would have been observed if the test had included the standard and 'improved' Swift, standard Zipper, and similar cartridges.

We've heard for years that some cartridges are more 'efficiently designed' than others. Let's consider that. Mr. C. C. Meredith, in his excellent series of articles (RIFLEMAN 1946), demonstrated that no ordinary change in body and shoulder design can be expected to affect the velocity-pressure ratio in cases of Wasp and Improved Zipper capacity. Until someone controverts the finding with research which is at least as extensive and painstaking, it will have to be accepted. If it is, then there is no magic of case design capable of making a small case generate velocities obtainable in larger cases *at the same pressure*. The phrase 'efficient design' does not relate to velocity.

On the basis of the present experiment, I must also conclude that 'efficient design' has little to do with accuracy. The only other meaning that I can figure out for the phrase, then, is that a lot of experts have been talking through their hats, and that is a sad and un-American conclusion for which I will probably hate myself in the morning.

However, while there appears no reason for selection on the basis of inherent accuracy, there are other considerations. The Wasp should give longer barrel life, at the same pressures, than the Improved Zipper or the .22-250. The higher velocities obtainable *safely* with the Improved Zipper and the .22-250 would be advantageous in the game fields and, conceivably, in wind-bucking. Both Wasp and Zipper cases are stronger and safer than most .22-250 brass, and last much longer in reloading. Wasp cases are a nuisance to make, requiring special dies. Only the Improved Zipper, of the three, can use factory ammunition. My Wasp seemed considerably less flexible and more load-sensitive than either of the other two calibers.

Take your choice. ◆ ◆ ◆



BEGINNER'S BALLISTICS

By STANLEY M. WHITE, M.D.

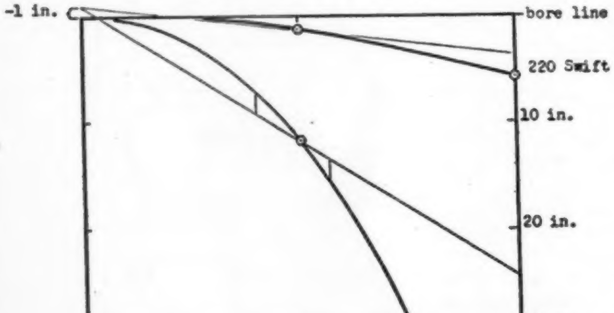
THE FIRST OF FOUR SHORT ARTICLES ON THE ELEMENTS OF BULLET BEHAVIOR

THE PAST FEW YEARS have seen a remarkable increase in the velocities of sporting rifle bullets, obtained in part by the development of controlled burning powders, and in part by the development of cartridge cases that are much stronger than older types. "High velocity" has become the motto of the ammunition manufacturer and the handloader alike, with the result that unless a box of shells bears the magic words, it is likely to gather dust on the dealer's shelf, and any load is likely to be judged by the muzzle velocity it gives.

Certainly there is no argument that the newer rifle cartridges of today are superior to the older ones in accuracy, killing power, and flat trajectory, and that part of this superiority is due to increased velocity; but are benefits of equal magnitude to be expected in the future by development of still higher velocities? Is it worthwhile of a handloader to abandon a load with which he is familiar for one which promises one or two hundred feet per second higher muzzle velocity? Should we trade in our favorite deer rifle with the oil finished stock for a new one, merely because the dealer promises that the three hundred odd feet per second increase in muzzle velocity will make the new one shoot infinitely harder and straighter?

These questions are of interest to every rifleman, and many have the answer firmly fixed in their minds. The radical shouts "high velocity", while the conservative is likely to mutter, "You'll blow your head off—I hope!" The rest of us, who have not already decided what velocities are needed to serve best our particular purposes, may be interested in considering some of the results of increasing muzzle velocity, since a few of these results constitute serious disadvantages in certain kinds of shooting.

Though both are .22 caliber cartridges, trajectory curve of .220 Swift is far flatter than that of the little .22 long rifle rimfire load



This month we will consider the advantages to be expected when the velocity of a rifle bullet is increased.

1) *Flatter trajectory.*

As soon as a bullet leaves the barrel of a gun it is subject to the action of gravity just like any other unsupported object. The result is that the course of the bullet flight, which was established in the barrel, is deflected downward and the bullet describes a curved path through the air, known as its trajectory. Everyone is familiar with the curved path (or trajectory) of a stone or ball thrown through the air. The trajectory of a rifle bullet can be visualized as being quite similar. If the ball is thrown harder (that is, faster), its flight is less curved. Similarly, increasing the velocity of a bullet will result in a less curved trajectory. This is because the bullet travels from the gun to the target faster, and therefore, has less time to fall from the path begun in the barrel. Since our eyes see in a straight line, we cannot make our line of sight follow the path of the bullet, so we must line up our sights with some particular point along its flight. Such a line of sight will intersect the path of the bullet at two points, one close to the muzzle where the bullet rises above the line of sight, and one at a greater distance, where the bullet drops below the sight line. Between these two points the bullet flies above the line of sight. In ordinary shooting situations it is the farther point of intersection that interests us, and it is at this point that we consider our rifle "sighted in".

The flatter the trajectory curve of a bullet is, the longer will be the range over which the bullet will remain reasonably close to the line of sight. For example, suppose we are shooting a varmint whose body is four inches tall and our rifle is sighted in for one hundred yards. So long as our bullet is within two inches above or below the line of sight, we will hit our varmint if we aim at his middle. With the .22 long rifle cartridge our bullet will be within two inches of the line of sight from about 80 to 110 yards. By comparison, if we are shooting the .220 Swift with a velocity three times as fast as the .22 long rifle, our bullet will remain within two inches of the line of sight from the muzzle of the gun to a range of 200 yards. In other words, if we estimate the range at 100 yards, we will hit our varmint with the .22 long rifle only if the actual range is between 80 and 110 yards, while with the .220 Swift we will hit him if he is anywhere within 200 yards of us. This great leeway in estimating ranges is gained by using a higher velocity bullet with flatter trajectory. The changes in trajectory curve that result from increased velocities will be discussed at length later in this series.

2) *Increased accuracy—sometimes.*

More consistent accuracy may *sometimes* result from increased velocity, depending upon the design of the cartridge and the rifle. Like race horses, high velocity bullets are capable of fine performance only if they are carefully, skillfully, and accurately controlled. They are capable of performing very badly when not properly handled. Philip Sharpe, in his "Complete Guide to Handloading", reports ten shots in experimental firings at "tremendous velocities", that made a group at 100 yards which could be covered by the head of a .30-'06 case.

The .22 rimfire target rifle is capable of placing almost all of its shots in a one-inch circle at 100 yards with velocities of around 1,100 feet per second *if conditions are ideal*, so that even at this low velocity, rifles have been developed which have accuracy in excess of what any but a few marksmen will require; for with most of us, the human error greatly overshadows the error of such a gun.

Unfortunately, conditions are not always ideal, either on the hunting or on the target ranges. Particularly in the West there is usually more or less wind blowing from one side or the other. This wind tends to deflect the bullet just as does gravity, so that the path of the bullet is again curved, this time laterally. Furthermore, while the force of gravity is constant, the wind changes in both force and direction from second to second, so that its effect on the bullet must be estimated for each shot. Unless this is skillfully done, changes in wind are capable of spreading .22 rimfire shots pretty well clear across a target at 100 yards, and reducing our chances of hitting small game to practically nil.

The deflection of the bullet by the wind is reduced by increasing velocities just as the deflection caused by gravity is reduced, because the faster a bullet travels from gun to target, the less time there is for both gravity and wind to deflect it from its path. Flatter trajectory and lessened wind deflection are the two great advantages to be gained by increasing the velocities of rifle bullets.

3) *Increased striking power or energy.*

A bullet is nothing more than a container for delivering destructive energy at a distance from ourselves. When a bullet is accelerated from its position of rest in the chamber of a rifle up to a velocity of one or more thousand feet per second, a great deal of energy is stored in the bullet; when the bullet is stopped by the body of a game animal, that energy is released with deadly destruction of the flesh and organs in its path. This destructive force, delivered to the body of the target animal by the bullet is the striking power or energy of the bullet. The energy that must be imparted to a bullet to put it in motion increases as the square of the velocity attained, and likewise the energy which it will release on impact is proportional to the square of its velocity at the time of impact. Due to air resistance, a bullet in flight loses velocity, and therefore energy, quite rapidly so that it is able to deliver less and less energy at longer ranges. This loss of energy continues through its flight.

Just as two similar bullets traveling at the same velocity would deliver twice as much energy as one alone, so a bullet's energy content is doubled at a given velocity if its weight is doubled; in other words, its energy is directly proportional to its weight. The unit used in measuring the striking energy of a bullet is the foot-pound, which is equal to the energy required to raise one pound vertically one foot.

The relationships of energy, velocity, and bullet weight are shown by the formula:

$$\text{Foot-pounds} = 2.22 \times \left(\frac{\text{Velocity}}{1000}\right)^2 \times \text{grains}$$

A few calculations with your favorite weight bullet will demonstrate that energy is increased very rapidly as velocity is increased; a forty percent increase in velocity will double the striking energy. It is generally considered that a deer rifle should fire a bullet that delivers at least 1000 foot-pounds at normal hunting ranges. Bullets delivering considerably more energy than this are desirable for deer and necessary for larger or dangerous game. Insofar as the killing of game is concerned, high striking energy is desirable.

Unfortunately, the advantages resulting from increased velocity cannot be obtained without producing a number of side effects which limit the velocities that can be attained with present-day equipment. Certain other effects that result when velocities are increased are undesirable in many types of shooting, so that before a decision can be reached as to the best rifle for a particular use, the advantages to be gained by higher velocities must be weighed against the disadvantages that will result. The limiting factors and disadvantages of high velocities will be considered next month. *(To be continued)*

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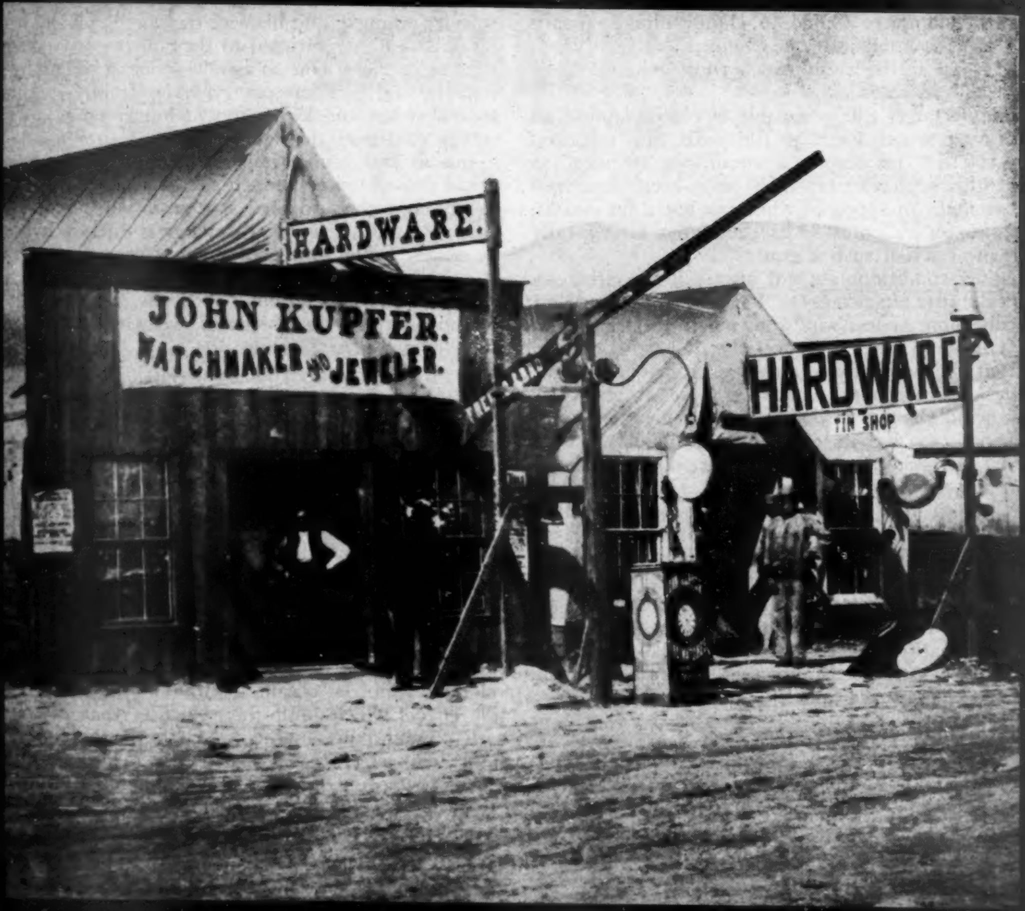
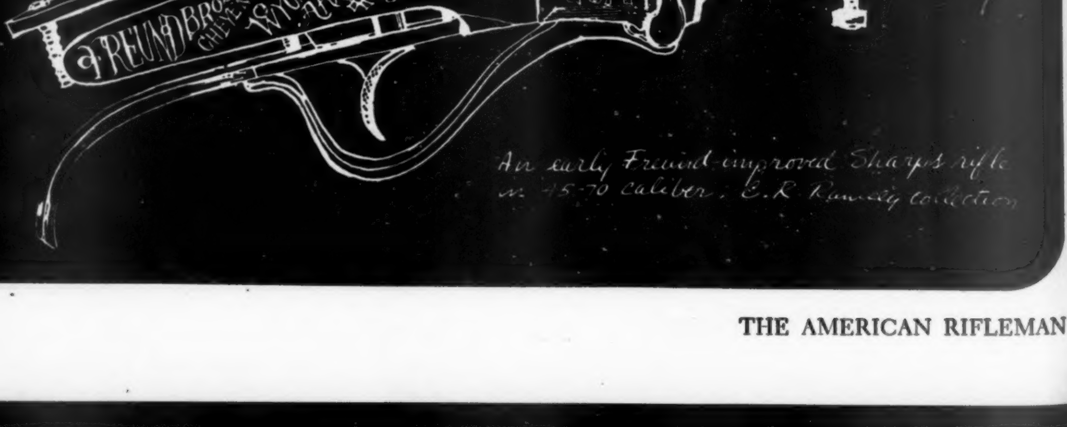
WHY NOT ORGANIZE A RIFLE CLUB?

IF YOU'RE *an average American, you're a 'joiner', because you appreciate the fun of getting together with other Americans who share your interests. There's another thrill, though, that's greater than joining. Why not get your fellow gun bugs together and organize your own NRA-affiliated rifle and pistol club? The fun of mere joining will pale beside the thrill of building up your own organization, among your own neighbors, and thus sharing the pleasures of rifle and pistol shooting with like-minded men of your own community. How? Write to the National Rifle Association, 1600 Rhode Island Avenue, Washington 6, D. C. A postcard will do. Just ask for "club affiliation dope" and complete, easy-to-follow directions will be sent immediately. And don't forget that the advice and help of the NRA staff will be yours for the asking, together with detailed range plans, clubhouse layouts, advice for club officers, and made-to-order match and target shooting programs to get your new club off to a good start. Organize your own club, and join the 7,000 senior and junior NRA clubs already in existence!*

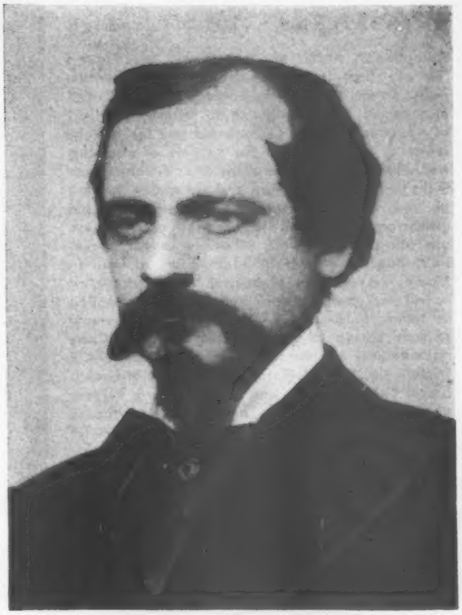

HARDWARE.
JOHN KUPFER.
WATCHMAKER AND JEWELER.
HARDWARE
TIN SHOP

William Henry Jackson's photograph of the Freund Shop in Corinne Utah Territory 1869


FREUND BROS
CHEYENNE
WYOMING ARMORY
FRONTIER GUN

An early Freund-improved Sharps rifle in 45-70 caliber. E.R. Rumely collection

All but forgotten are the two immigrant gunmakers whose stock-in-trade consisted of their ability to improve other people's rifles



George Freund, about 1880

By JOHN J. BARSOTTI

FREUND & BROTHER

Pioneer Gunmakers of the West

Frank W. Freund, taken in 1877

ONCE IN A WHILE a gun crank will ask, "Who were the Freund brothers? I saw an engraved Sharps rifle out in Wyoming that looked like it had the action changed, and it had their name on it. . . ." Or perhaps the question will be, "Who was F. W. Freund? A friend of mine saw a Hi-Wall Winchester that was altered to a hammerless and it was marked F.W. FREUND but we can't find out anything about him". Such experiences are unusual, for few have ever heard of the Freunds or seen one of their rifles. But now and then a Freund-improved Sharps turns up, arouses some speculation and is forgotten. Historians, so often neglectful of gunmakers, have passed over the Freund brothers almost in silence.

George and Frank William Freund were born in Heidelburg, Germany and came to America in 1857. Frank was at that time twenty years old and his brother George several

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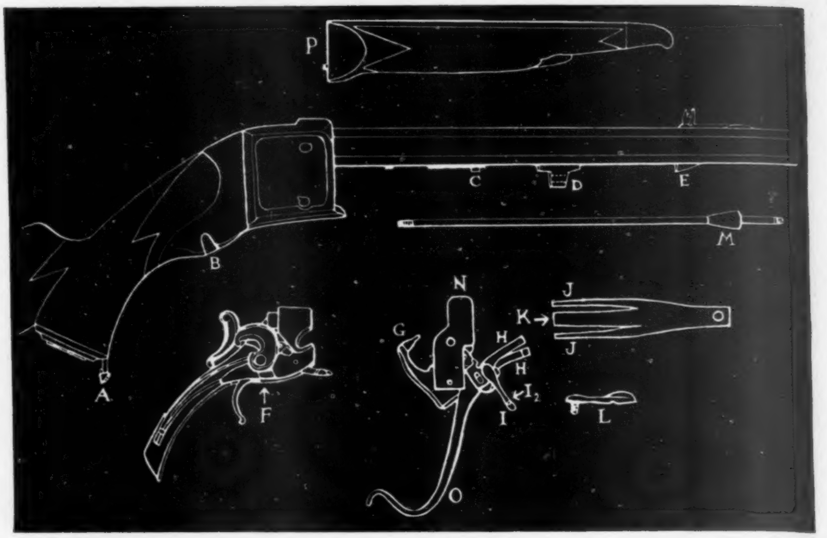
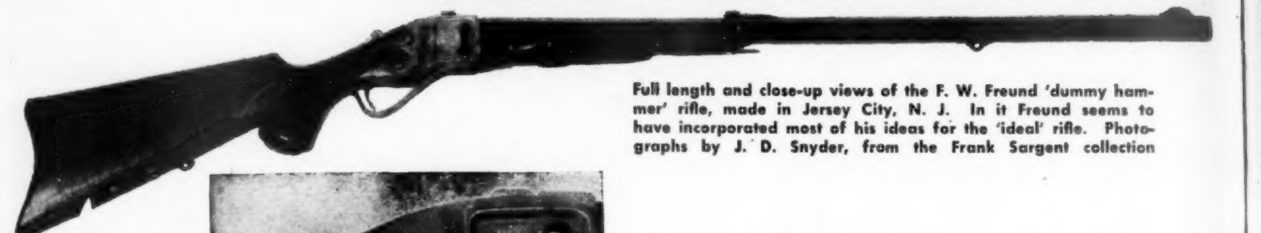
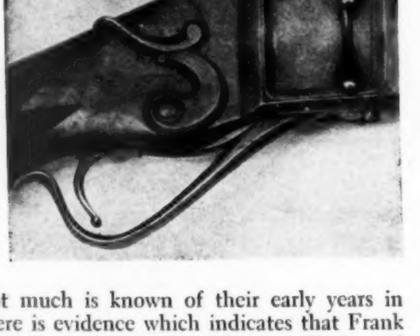
I wish to thank the following for assistance in my search for information on the Freund brothers and their work: Miss Ina T. Aulls of the Denver Public Library; Miss Catherine E. Phelan of the Wyoming State Library; Miss Lola Homsher, Archivist of the University of Wyoming; Mrs. E. Lauchnor, Utah State Historical Society; Mr. William G. Murphy of the Union Pacific Railroad; Mr. F. W. Miller, Free Public Library, Jersey City, N. J. Also Frank P. Sargent, John Amber, B. S. Tedmon, Warren Richardson, Mel J. Freund, Col. Frank H. Mayer, A. M. Camp, Stuart Miller, Wm. C. Almquist, W. H. Lenneville, Wm. Kirkwood, C. R. Ramsey, William Carr, Darrell Muething and many others.

Component parts of the Frank W. Freund 'dummy hammer' rifle: A-Sliding latch which pulls down to release hammer, trigger, and mainspring group; B-Notch in frame for shaft of hammer dummy; C-Threaded lug for thumbscrew L; D-Guide hole for section of cleaning rod which holds fore-end on rifle; E-Cam which locks cone M of cleaning rod by spring tension of rod; G-Actual inside hammer; H-Double extractors which will lift off their pins; I-Lever operating through-bolt; I-2-Slight detent pocket in through-bolt to hold under head of stud in frame; J-Twin side leaves of spring work on extractors, one on each side; K-Center section of spring holds finger lever up; L-Thumb screw to hold spring to underside of barrel; M-Cone on cleaning rod to spring back of cam lug E friction tight. Holds fore-end in place; N-Breech block; O-Finger lever and trigger guard; P-Fore-end. All of these parts are easily dismounted with the fingers. All interior working parts of this Freund rifle are highly polished





Full length and close-up views of the F. W. Freund 'dummy hammer' rifle, made in Jersey City, N. J. In it Freund seems to have incorporated most of his ideas for the 'ideal' rifle. Photographs by J. D. Snyder, from the Frank Sargent collection



years younger. Not much is known of their early years in this country but there is evidence which indicates that Frank Freund had followed the family trade in Vienna, Paris, and London and that he and his brother were engaged in the gunmaking business in the east about the time of the Civil War. Frank Freund served as a soldier in the Union Army during the final eighteen months of that conflict. In 1867 they were working as gunsmiths along the Union Pacific Railroad as the tracks were laid west. In the fall of that year their advertisement appeared in the first newspaper published in Cheyenne. The older brother seems to have always been the leader as long as they remained in business together and apparently he was always the superior craftsman and the inventive genius of the two. There were 21 patents issued to the Freunds between 1874 and 1893; of these 18 were issued to Frank Freund and but 3 to George Freund.

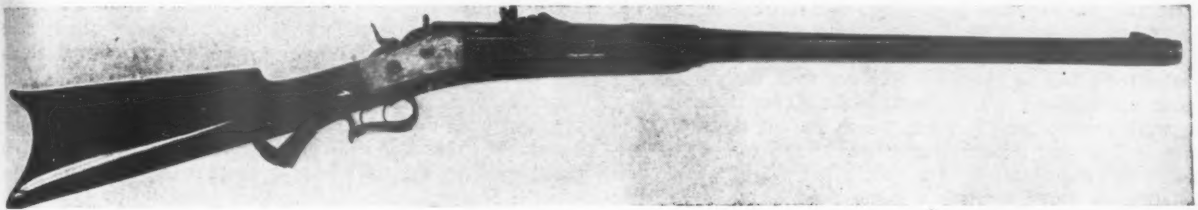
The Freunds evidently had some capital to go on and a capacity for business organization, for in 1869 there were indications that they had begun to expand their business as gunmakers and dealers. In that year they had rather detailed advertisements in the *Salt Lake City Directory* and in Brown's *Gazetteer of the Chicago and Northwestern Railway, and Branches, and of the Union Pacific Rail Road.* These advertisements, which were similar in content, furnished a number of clues to the Freunds' activities during this period of their lives and establish the locations of some of their shops.

They announced themselves boldly and perhaps proudly as "Pioneer Gunsmiths of the West" and "Pioneer Armorers On The Union Pacific Railroad," with places of business in "Cheyenne, Laramie, Benton, Green River, Bear River City, Salt Lake City and the *Terminus of the U. P. Railroad*."

It is doubtful if the Freunds had any actual connection as armorers employed by the Union Pacific Railroad. Their names do not appear in the old payroll and record books of the Casement brothers, the contractors who laid the rails of the Union Pacific. The Casements had an arsenal of a thousand rifles for use in arming the work gangs during Indian attacks and they had their own repair shops on the construction train but there is no mention of the Freunds as part of their crew. But there is proof, in the form of a photograph (page 36), that the Freunds were a part of that rough-and-ready population which advanced from one boom town to another as the railroad was built. In the summer of 1869, shortly after the rails were joined at Promontory Point, William Henry Jackson was taking pictures in nearby Corinne, Utah Territory and in that dusty little boom town he photographed one of the Freund shops. The name "Freund & Bro" appears, in the ancient photograph, on the stock of a big wooden rifle which was their trade sign in front of the canvas and frame shack they occupied with John Kupfer, a jeweler. The bearded figure in the doorway behind the sign may be Frank Freund.

By 1871 the Freund brothers were in business at 24 Blake Street in Denver, Colorado. Possibly they moved there in 1870 for they were listed among the premium winners, with a sporting goods display, in the 1870 Fair. In December of 1872 they opened a big establishment handling guns and supplies at 31 Blake Street and the newspaper, the *Daily Rocky Mountain News*, described their store and stock in detail, praising it as being among the finest of the kind in the western country. At this time they had a number of men working for them in their gunsmithing department. Their store was designated by a large double-barrelled shotgun made of wood, seventeen feet in length, which was suspended from the front of the building. Apparently they had closed or sold all their other stores except the shop in Cheyenne, as no mention is made of any of the others. The Cheyenne establishment may have existed as a branch store several years after the others.

In the Frank Sargent collection is a rifle built by F. W. Freund in the Denver shop. It is a splendid example of custom work and is built on the Remington rolling-block action. On the left side of the receiver is engraved, "Improved and Patented by F. W. Freund, Denver, Colo. July 28, 1874". This rifle is chambered for the .44-77 Sharps cartridge. It weighs eleven pounds, has a 29-inch barrel and is stocked with dense dark walnut. The barrel is a unique *double octagon* with the second set of flats milled 22½ degrees from the other set. This treatment leaves a pointed ridge running down the top of the barrel between the sights and must have been done to reduce light reflection. The breech block, extractor, and hammer were changed by Freund. He doubled the width of the extractor, increasing its strength and reducing the possibility of a shell head slipping past it. He also installed fine Schuetzen double set-triggers (patent number 153,432), on this rifle and a handsome trigger-guard, the rear tang of which forms a skeleton steel pistol grip, sharply checkered. The open rear sight, of Freund's design (patent number 160 818), is eight inches long and calibrated for ranges from 100 to 500 yards.



Above: Sporting rifle built by F. W. Freund on the Remington rolling-block action. Marked "Improved and Patented by F. W. Freund, Denver. Colo., July 28, 1874." Rifle weighs 11 pounds, uses the .44-77 cartridge

The Freunds must have had a considerable reputation by this time among the hunters and riflemen who frequented Denver as an outfitting and supply point. They were located in the heart of the finest big-game country in the United States—perhaps the finest, at that period, in the world. Herds of buffalo darkened the plains in numbers that seemed to be limitless and there were such quantities of antelope, elk, deer, bear and lesser game as to make the West a hunter's paradise. Market hunters, sportsmen, and hide hunters created a demand for heavy-calibered rifles of the single-shot variety and the Freunds were there to help supply them. It was a golden age for riflemen. For Frank Freund and his brother it was no doubt a busy time.

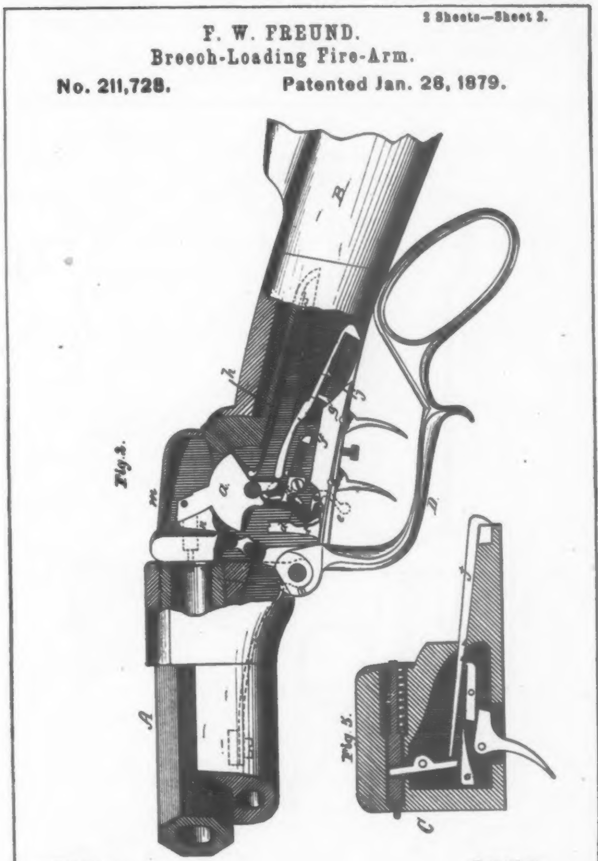
In 1873 the names of the Freunds appeared in a newspaper notice among those of fourteen men who organized the Denver Deutscher Schuetzen Verein . . . "to diffuse useful information amongst the members; to practice after the target; to acquire a proficiency in the use of firearms; and for social amusements."

The *Daily Rocky Mountain News* on May 20, 1875, announced rather abruptly, that "Freund & Bro., have sold their sportsmen's depot to John P. Lower of the firm of Gove & Co. . . . . " Thus their careers as Denver gunmakers were brought to a close.

By June 28, 1875 the Freund brothers were back in business in Cheyenne, opening a store on Eddy St., which they called the "Wyoming Armory." (There is a possibility that they retained this Cheyenne location as a branch shop throughout their stay in Denver, although this seems unlikely.) At any rate they soon began to produce their Freund-Improved Sharps in this "Wyoming Armory," no doubt making a bid for business from the army of buffalo hunters then engaged in the slaughter of the buffalo.

An unpublished manuscript of Edward Burnett in the files of the Wyoming Stock Growers Association contains some interesting information on the activities of the Freunds, or at least F. W. Freund, during this period. Under the heading "Freund's Castle" it reads:

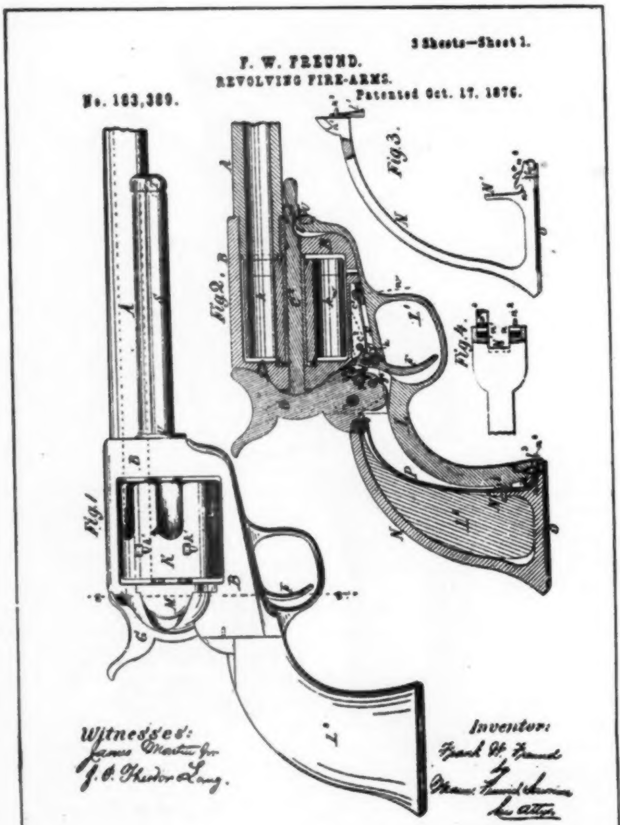
"This big red sandstone butte on the South Fork of Powder River, ten miles north of Salt Creek, is still called (Freund's Castle), but no one in this country knows why



this name, so you boys have a little patience with me and I'll tell you why (it is) so named and all about Freund the gunsmith, who improved the Sharps rifle for the buffalo hunters. . . .

"Freund's camp was on the river bottom right where the South Fork Powder River bridge is, where it was easy to find, as the castle could be seen for miles around. He had his dugout and drying ground, I can't go into particulars . . . enough to say they made their own ammunition and were very particular casting the bullets, they made the melted lead and 6 percent tin almost red hot in a dutch oven, buffalo fat fire above and below. . . . The next camp was Jim White's at the spring 4 miles below old Fort Reno and between them they worked this locality. It was Jim White's men who in a joking way named this butte Freund's Castle.

"Freund had worked in the buffalo range, and in gun matters he was quite a genius. The first thing he did was to put in another extractor, the old style rifle had only one extractor and when there was fast shooting and the rifle got dirty and the cartridge hard to get out this extractor would sometimes break and that meant the ramrod had to be used, which was slow work. The hunters did carry extra ones (extractors) but by the time they got it in their stand was spoilt and perhaps a day's work spoilt. Then Freund went to work on the breech block, which he cut down on one side . . . so that it worked as a wedge and forced the cartridge into the chamber. His patent front sight was a combination of three sights . . . the hind sights were wide spread and were quick to catch the bead. These patents he put on a gun for $30.00 to $40.00 . . . He also made a telescope sight which was used. . . .



Frank Freund 'improved' the single-action Colt so that it could be taken apart without use of tools. This patent was issued to Freund in 1876

"I have talked to men who knew Freund and gather that he was at different times of his life buffalo hunter, gunsmith and when South Pass was shipping out gold by the wagon load he worked there as a machinist."

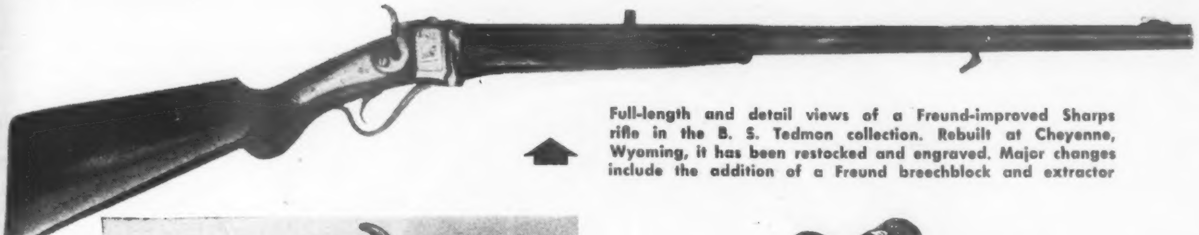
F. W. Freund, in the late 1870's, secured a series of patents on breech blocks and firing pins for the 1874 and 1877 side-hammer Sharps actions. His patents also applied to other single-shot rifles popular at that time. He patented a means of altering rifle actions (No. 216,084), primarily the Sharps, whereby the hammer could be brought to either half or full cock as the breech was opened for reloading. (Freund's name has been associated by some collectors with the little-known Model 1875 Sharps and this may be because of having seen the above patent applied to one of his alterations.)

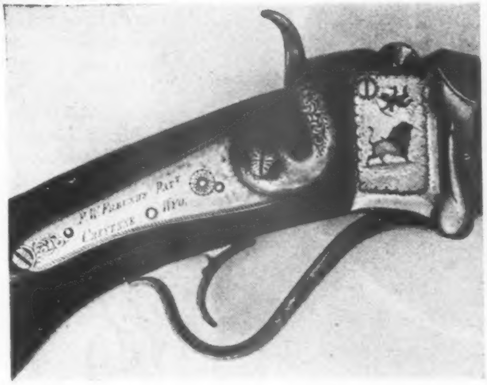
From fragmentary records it appears that prices ranged from about $30.00 or $40.00 for a plain job of alteration to $100.00 or $125.00 for a fancy restocked and remodelled Freund-Sharps. Rifles in this latter classification are nicely engraved, have a checkered pistol grip stock and horn-tipped fore-end and a shotgun buttplate with a sliding door in it for opening into a cavity in the stock for a sectional cleaning rod. Some have swivel bows for a sling strap. Many have double set-triggers and nearly all have the special combination peep and open rear sight and Freund front sight. No doubt Freund and his brother made some barrels but in most instances the rifles bearing the Freund name have the original Sharps barrel. Calibers are generally those popular in the medium-weight hunting type Sharps; the .40-70, .40-90, .45-70, et cetera.

From *some* of these Improved-Sharps Freund removed all factory marks of identification, substituting his own patent marks and name as well as his serial number. Two Freund-Sharps are known which are numbered 203 and 204 respectively but his serial numbers may have gone much higher. Some of these rifles from the Cheyenne shop are engraved on the lock-plate, "Freund's Patent," or "Freund Bros." or "F. W. Freund's Patt." The address "Wyoming Armory, Cheyenne Wyo. T" also appears on nearly all Freund-Sharps lock-plates with variations, as no two seem to be marked exactly the same. (One Wyoming gunsmith has owned two that were marked, "Freund Brothers, Rawlins, Wyo.") Many of the rifles were boldly engraved with such names or titles as "American Frontier," "Freund's American Frontier," "The Famous American Frontier Rifle," or "Freund Im'p'd, Frontier Gun." Generally this legend is engraved in large letters on the left hand side of the receiver. The owner's initials were often engraved on the top tang in the form of a monogram. An 1874 Mid-Range Sharps in the John Amber collection has the name "Peirre Lorillard" engraved on it. Apparently the tobacco magnate was a Freund customer. One wonders how he reacted to this misspelling of his given name.

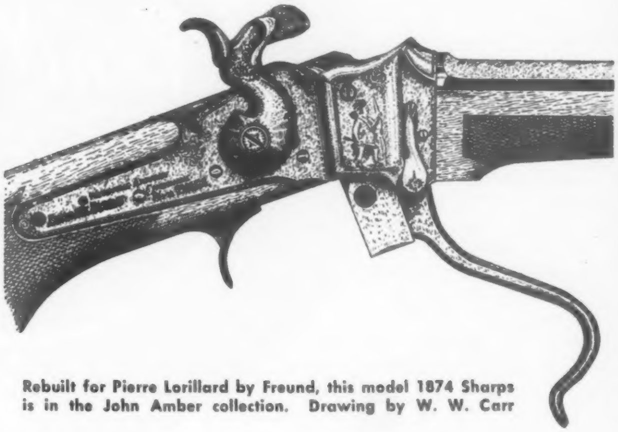
Freund was very interested in the problem of constructing rifle and pistol actions which could be dismounted without the use of tools and from which separate pins and screws had been eliminated. His patents 183,389 and 184,204 pertained to this idea. The Colt Single Action Army revolver Freund redesigned in this manner, making it possible for the revolver to be taken apart and put together by an interlocking of the parts and frame, no tools being necessary.

In the early 1880's George Freund opened a shop in Durango, Colorado which he called the "Colorado Armory." He advertised at that time a "More Light Sight," a patented rear sight with a diamond-shaped aperture underneath the





Full-length and detail views of a Freund-improved Sharps rifle in the B. S. Tedman collection. Rebuilt at Cheyenne, Wyoming, it has been restocked and engraved. Major changes include the addition of a Freund breechblock and extractor



Rebuilt for Pierre Lorillard by Freund, this model 1874 Sharps is in the John Amber collection. Drawing by W. W. Carr

V-notch, making it in function a combination peep and open sight. George Freund is remembered by old timers as a skilled workman, a maker of fine rifle sights and a first class gunsmith with an Alsatian accent to his speech. One Model 1877 Sharps, serial number 28, has been found marked on the barrel, "Freund Pat. June 29, 1880, Durango, Colorado." Evidence indicates that George Freund was affiliated with the Cheyenne shop, probably as an agent, until it was closed, although operating his own business in Durango. The original "Colorado Armory" on First Street was destroyed by an explosion and fire in 1891 but George Freund continued in business in Durango as a gunsmith until his death on March 25, 1911.

Frank Freund remained in Cheyenne until the middle 1880's, his name appearing in the city directory for the last time in 1884-85. He then moved his business and family to Jersey City, New Jersey where he was listed as a gunsmith in the city directory of 1886-87. His name continued to appear in Jersey city directories, although occasionally omitted, until 1908. His death on July 27, 1910 brought to a close his colorful career.

It would be interesting to know just what was his incentive for moving to Jersey City, after having been established for so many years in the West.

The answer may lie with a rifle now in the Frank Sargent collection. It is a "dummy hammer" single-shot rifle, and on the top flat of the barrel ahead of the receiver is engraved "F. W. Freund, Patentee & Maker, Jersey City, N. J." In this gun Freund seems to have at last achieved a unity of all his ideas for a perfected single-shot rifle. This "dummy hammer" rifle is a completely new model, a falling-block type of action, with the real hammer contained within the action and cocked automatically as the breech is opened for loading. The dummy hammer on the right side of the receiver is used only to uncock the rifle or to re-cock it without opening the action. This dummy hammer does not strike any firing pin.

The rifle can be taken apart with only the fingers—no tools are needed to strip it. A short section of the cleaning rod locks the fore-end to the barrel. The flat mainspring under the barrel is held in place by a thumb screw. The outside dummy hammer comes out on the lower tang assembly with the trigger, and a spring-held lever pin is removable so that the lever, breech block, and double extractors come out. The shotgun buttplate has a sliding trap door in it for three short, threaded sections of cleaning rod.

This F. W. Freund rifle is chambered for the .45-120-550 (the .45-3¼ Sharps Buffalo cartridge), a big cartridge for a rifle weighing 8½ pounds. The 28-inch octagon barrel measures one inch across the flats at the breech and ⅞-inch at the muzzle, which is turned round. The sights are plain; a blade front and Freund folding leaf type rear. The stock and fore-end are finely grained walnut, the fore-end is capped with buffalo horn and a long through-bolt holds the stock to the action, similar to the Ballard or Sharps-Borchardt system. A second barrel, marked like the one on the "dummy hammer" rifle, came with the rifle and is chambered for the .45-100 Sharps cartridge. Mr. Sargent does not believe this second barrel was made for this rifle although it shows the same excellent workmanship.

The late Major Ned Roberts examined this Freund rifle in 1946 and pronounced it the finest design for a falling-block action that he had ever seen. Major Roberts was of the opinion that a modern version of this action ought to be produced by one of the large rifle companies.

It is not known when or why F. W. Freund made this fine "dummy hammer" rifle. Was it his personal gun, summing up years of experiment in firearms design? Was it meant to be a "pilot" model? There seems to be some basis for the belief that it was made to sell Freund's idea of a simplified and improved rifle action to one of the firearms manufacturing companies of 65 or 70 years ago, possibly Sharps, and was the reason Freund moved east. However, by the time Freund moved to Jersey City the Sharps Rifle Company was out of business; and if he made the rifle during a temporary stay in the east in the 1870's, why did he not mark it with his Cheyenne address? An alternative theory is that the rifle was made much later than anyone suspects and was a crowning achievement to a great craftsman's career.

Much of the Freund brothers' history is and probably will remain, unknown. But they deserve to be numbered among the skilled gunmakers who contributed to the greatness of the single-shot rifle era in this country.

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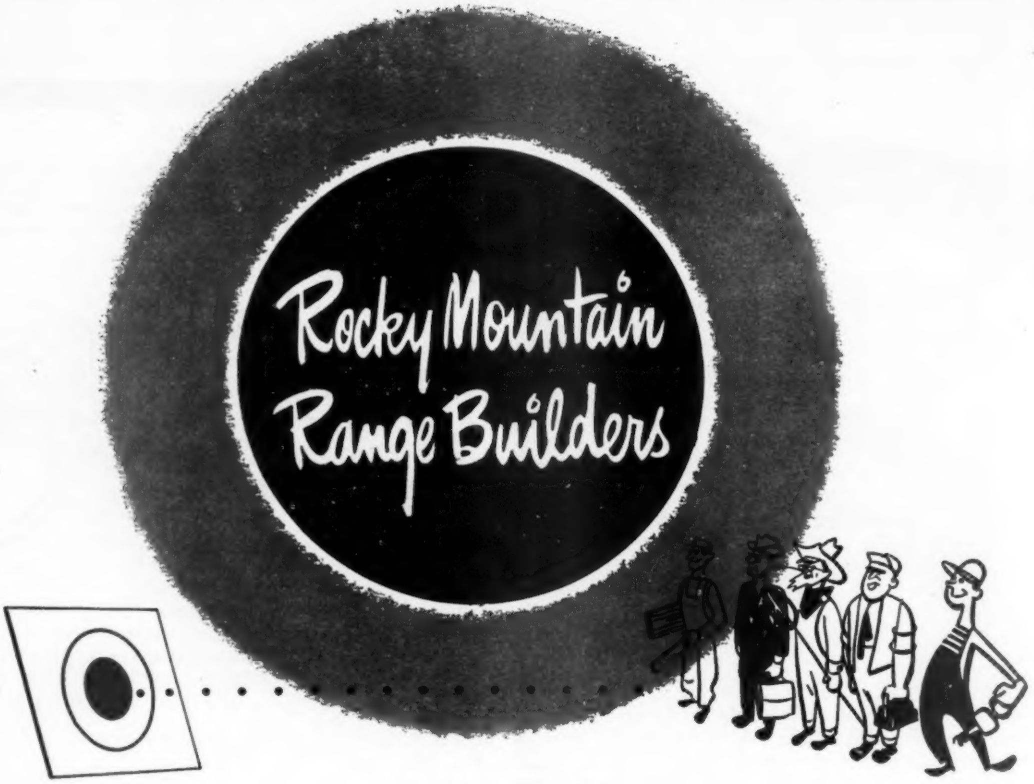
Rocky Mountain Range Builders



By LEE E. ECHOLS

No place to shoot? Don't let it get you down. What this club did, yours can do too!

"WHAT DO we do next?" is the usual query of members of a newly organized gun club. "How do we get a range?"

There was never any doubt about the answers to these questions when the Lafayette Rifle Club of Lafayette, Colorado was organized in the fall of 1948.

To begin with, Lafayette is a progressive little community of two thousand people, situated some twenty-five miles north of Denver, squarely athwart the crossroads of U. S. Highway 87-287 and Colorado State Highway 7.

Lyle Mathes and Norman Houston, a couple of steam fitters and welders with a lot of know-how and enthusiasm, formulated the plan. It envisioned an organization of influential people and experienced craftsmen who would get things accomplished by community prestige and elbow grease.

With this in mind, the dues were set low ($5.00 per year) as they felt it was more important to get men in the club who could help in construction than to get a larger sum of money in dues and then have to spend it for labor and material.

The town was canvassed and business men, professional men, contractors, carpenters, welders, and run-of-the-mill citizens were contacted for membership. Twenty-three charter members were signed up and the election of officers took place. Going along with the National Rifle Association's recommendation of electing a prominent man in the community as president, Leland H. Moore, Director of the Lafayette Lumber Company, was elected. Because of his past experience in the shooting game and his unbounded energy, Lyle Mathes was elected secretary.

As the club was organized in the late fall, the first step was that of obtaining a gallery range. This was accomplished with very little difficulty through the help of the Peltier-Weston American Legion Post No. 38, many of whose members were also members of the rifle club. A six-point 50-foot range was put together in the Legion Hall by the various welders, carpenters and mechanics of the newly-formed club, augmented a great deal by the women members who did the decorating, painting and cleaning of the range. As only two members of the club, Mathes and Houston, had ever fired in a match, the entire first year was spent in preparing new shooters for match competition. This was done by shoulder-to-shoulder competitive matches among themselves and by firing for NRA qualification awards. This gallery shooting was even carried on through the summer. The club had no top equipment for 50- or 100-yard shooting and Mathes and Houston were preparing the members well with this gallery shooting in order to instil the rifle shooting "bug" sufficiently to arouse their interest to the point of purchasing better equipment. Aside from this, smallbore rifle shooting had died down in the area to the extent that there were no registered shoots held during that period.

After almost a year of this type of shooting, with many special shooting events to keep the interest of the club alive, the Central Colorado Division registered gallery league started and the Lafayette Rifle Club entered two teams. They won the league championship right handily and Lyle Mathes and his wife, Virginia, won the individual championship and the women's championship respectively. The number-one team then went on to place second in the state gallery matches, and Lyle and Virginia made it a repeat performance by winning the individual state championship and the women's state championship.

About this time the American Legion sold its building and the club, which by now was getting stronger and gaining in prominence in the community, moved into the second phase of the plan. With all the fine shooting of the past season back of them, the club appointed a committee to go before Mayor Roy S. Roberts and the town board of trustees in an effort to show them that with proper backing from the city, the Lafayette Rifle Club could build an outdoor rifle range which would not only provide recreational facilities for local shooters, but would also, through large matches which would be held on the range each year, provide tourist trade equal in value to a small industry. The Mayor and the board of trustees were enthusiastic over this proposal and appointed a committee to show the club what city property was available. The choice spot seemed to be a tract adjacent to the high school and within the city limits, consisting of about five acres. The butts could be built at the north end and the shooting would be away from the town and the firing line would be less than two blocks from downtown Lafayette. In its negotiations with the Mayor and city board of trustees, the Lafayette Rifle Club agreed to build immediately an outdoor range capable of handling state and regional matches, and to construct a permanent building in 1951 to be used as a clubhouse and gallery range. The city officials agreed to this and showed their good faith by deeding a section of the property to the club for construction of the proposed clubhouse and

gallery range. They also agreed to lease the remainder of the property to the club for ten years for $1.00 with an option for a further lease.

Then the Lafayette Rifle Club got busy. They put on a raffle, giving away $575.00 in prizes, all of which were purchased wholesale through members for a great deal less than this amount. They cleared $400.00 on this raffle, and with this and the hard work of experienced craftsmen in the club, they constructed a 25 firing point smallbore range and a statistical office. They bought used tin from a wrecking company in Denver; they cut spruce uprights in the Colorado Rockies; they obtained road grading equipment free to build the backstop, and the hard manual labor was done by the members. Lyle Mathes smiles as he looks back on it. "I never saw so many blistered barbers and bartenders in my life," he says. They finished this job ahead of schedule and the pressure became so great from smallbore shooters throughout the state that they decided a week prior to July 4, 1950, that they would hold an introductory match on that date. Although the match was barely advertised, the club found they had to turn shooters away after two relays were filled. They cleared about $150.00 on this match and with the prospect of holding the state matches if the range was enlarged, club members talked with business men in Lafayette and borrowed about $400.00 with which to continue the firing line on out to 66 points. This was completed and the state tournament arranged in less than three weeks' time. The merchants of Lafayette gladly donated trophies for this event, the restaurants of the town, which are all within two blocks of the range, were briefed on fast service, and when the state match was held, the town was booming for three or four days with shooters, their families and friends. This tournament was filled up and the club cleared about $500.00 on the match.

The covered firing points of the Lafayette (Colo.) small bore range

When this article was written the club had $200.00 in cash in the bank and the finest smallbore range in the state of Colorado. The entire community is enthusiastically shooting conscious, a junior club is being organized, and the civic minded Lafayette Rifle Club has offered its range and instructors to the city for a furtherance of the civilian defense and pre-induction training program now under way.

I asked Clarence Dinsmore, the present president of the club and one of the top businessmen of Lafayette, how they planned to build the clubhouse and gallery range next spring. "Our members will build it," he replied, and he looked like he meant it.

"What about money?" I asked him. "You can't get all that material for nothing."

He pondered this a few minutes. "We'll get the money," he said with a humorous tone of finality. "We've even got safe-crackers in our club."

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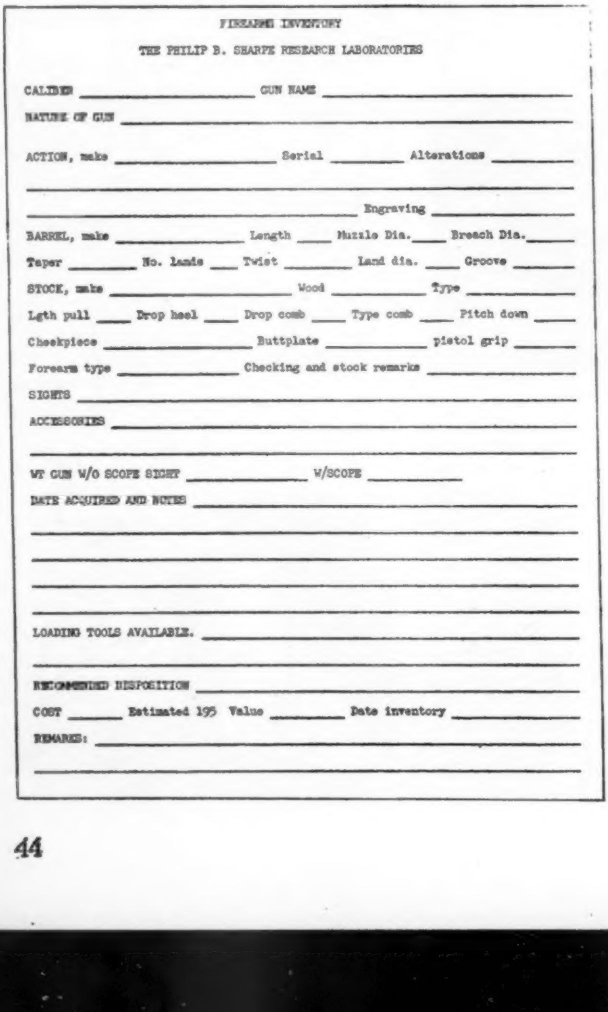
Rifleman Staffwriter Phil Sharpe Passes Out A Suggestion For Gun Owners:

INVENTORY YOUR GUNS

Do you have more than three guns? If you came home to find that one had been stolen, could you give a complete description to the police? If you should die suddenly, would your guns be auctioned off as junk—or disposed of as you wish, to realize the most money for your survivors? If a visitor asked you for the specifications of that pet custom rifle of yours, could you give them to him?

In the past third of a century I have owned many guns—and still have quite a few. Some are good guns; some are custom grade; some are working guns for field and target; some are collection pieces. They are insured against fire and theft—but in case of loss, the insurance company requires proof of claim.

Over a long period of years I have maintained an inadequate inventory. A year ago I decided to do something about it. I worked up an inventory sheet to cover one gun, and kept it handy during the usual visits of the gunbugs who turn up. Each one was asked to look it over and comment. It was revised and expanded many times. Finally it got to the point where no one offered additional suggestions and was adopted.



This is Phil Sharpe's firearms inventory form. Space is provided for information on both long arms and handguns

FIREARMS INVENTORY

THE PHILIP B. SHARPE RESEARCH LABORATORIES

CALIBER ______ GUN NAME ______

NATURE OF GUN ______

ACTION, make ______ Serial ______ Alterations ______

______

______ Engraving ______

BARREL, make ______ Length ____ Muzzle Dia.____ Breach Dia.______

Taper ______ No. lands ___ Twist ______ Land dia. ____ Groove ______

STOCK, make ______ Wood ______ Type ______

Lgth pull ____ Drop heel ____ Drop comb ____ Type comb ____ Pitch down ____

Cheekpiece ______ Buttplate ______ pistol grip ______

Forearm type ______ Checking and stock remarks ______

SIGHTS ______

ACCESSORIES ______

______

WT GUN W/O SCOPE SIGHT ______ W/SCOPE ______

DATE ACQUIRED AND NOTES ______

______

______

______

______

LOADING TOOLS AVAILABLE. ______

______

RECOMMENDED DISPOSITION ______

COST ______ Estimated 195 Value ______ Date inventory ______

REMARKS: ______

______

My inventory contains all of the data required, yet is not complicated. You can prepare the forms for duplication in any quantity. If you need less than 50, it might be cheaper to reproduce them on an inexpensive gelatin duplicator such as a Ditto machine or Hectograph. If you and your friends combine, they can be mimeographed in quantity. They should be run on standard business letter-size paper and punched for an inexpensive 3-ring loose-leaf binder. A duplicate set comes in handy. If you maintain a safe-deposit box, one set can be locked away, safe from the dangers of fire. The other set should be kept handy for reference.

The form eventually adopted appears on this page. Some of the following may appear superfluous, but I include it for what it is worth:

Caliber: (Allow space for writing in long names such as .270 Weatherby Magnum); *Gun Name:* (Winchester 71 Standard Grade; or Ackley custom on 1948 FN Mauser); *Nature of Gun:* (Field grade; or special target; or foreign military collection); *Action Make:* (Type and make); *Serial:* (Number); *Alterations:* (Comments such as streamlined, hinged floorplate; thinned trigger guard; Mashburn trigger; etc.); *Engraving:* (Describe, or write "none"); *Barrel Make:* (Buehler chrome-moly); *Barrel Length:* (Inches); *Muzzle Diameter:* (Inches); *Breach Diameter:* (Inches); *Taper:* (Describe type); *No. Lands:* (6 narrow); *Land Diameter:* (Inches); *Groove Diameter:* (Inches); *Stock Make:* (Milhoan custom, or factory target, or issue military); *Wood:* (Walnut); *Type:* (Fancy burl); *Length Pull:* (Inches); *Drop, Heel:* (Inches); *Drop, Comb:* (Inches); *Type Comb:* (Monte Carlo); *Pitch Down:* (Inches); *Cheekpiece:* (Full or thin or none); *Buttplate:* (Checked steel with trap; White Line rubber; Jostam recoil pad); *Pistol Grip:* (Full, horn cap); *Checking and Stock Remarks:* (Describe and include comments on forearm, etc.).

Accessories: (Ample space for description of gun case, quick-detachable swivels, sling, etc.); *Sights:* (Ample space for full description of front and rear sights or scope equipment and mounts); *Weight Gun w/o Scope:* (Pounds and ounces); *Weight with Scope:* (Pounds and ounces); *Date Acquired and Notes:* (Save at least four full lines for miscellaneous information); *Loading Tools Available:* (Universal dies; or none—obsolete or foreign); *Recommended Disposition:* (This is important: If an ordinary gun you might write "sale"; if it has sentimental value you might assign it to son Tom; if a valuable collection piece, indicate a couple of places where it might be sold. I have two rare guns. Both have been spoken for, and I list name and address of persons to be given first chance to purchase); *Cost:* (Indicate if known); *Estimated 195— Value:* (Be fair); *Date Inventory:* (Date form was filled out); *Remarks:* (Here about three lines for additional information).

Properly prepared, the above form fills one side of a sheet 8½ x 11 inches. It contains the answers you may want. You can add comments at the bottom for remarks on condition, history, or anything else.

My personal collection contains rifles, shotguns, automatic pistols, revolvers, and single-shot pistols. Obviously the above form contains certain portions not filled in for every gun; yet it does permit universal use for all types. I do not sell guns, but if I dispose of any, I would write "Sold" in red pencil in the margin and indicate when sold and to whom. I think I would still keep the sheet for future reference.

The loose-leaf sheets permit me to sort the sheets in the order I desire—target guns together, military collection together, shotguns, revolvers, or by caliber. I am indebted to approximately 100 shooters who assisted me in working out the above form.—PHIL SHARPE.

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Don't 'Kentucky' Me!

If that fixed-sight revolver doesn't shoot where you point it, put a moveable blade on the front end

BY MAJOR ELLIS LEA

KENTUCKY WINDAGE—sighting to one side of a target in order to hit center—may be all right for pistol-shooting residents of the Blue Grass State, but it is strictly sand in my crankcase.

Having acquired a pair of .45 1917 Army-type revolvers, a Colt and an S&W, in order to complete tests with a machine rest I had patented, I naturally found the day when I was not content to lock them in the grip of the rest and bang away for groups. But the day I first slipped those thumbbusters into my shooting kit and hightailed it to the range was a sad one. At 25 yards slow fire, it looked as if I had that old pistol shooter's ailment—'jerkers corner.' Some groups were good, some indifferent, but all had one thing in common—they were low and left at eight o'clock.

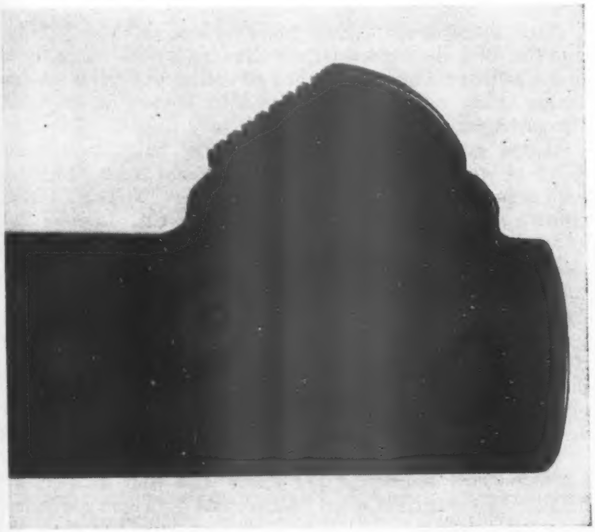

Fig. 1: After fixed blade has been cut off the 1917 S&W .45 revolver, a dovetail is cut in the sight base and a new blade fitted into it

Since I was out of shape and reluctant to blame the pistols, I took a tighter grip, gritted my teeth, and resolved to 'watch that squeeze more closely.' It was no use.

I cut down the front sight with a file and tried again. All I got for my troubles was nine o'clock groups, nine inches left with the Colt and seven inches left with the S&W. Checking my hold and squeeze with an Officer's Model Colt .38 Special showed a 99 on the Standard American target. There was nothing wrong with my shooting, I concluded.

Looking for an easy way out, I bent the front sight on the S&W as far as I dared and filed the top level, but it still shot eight inches left of center. That was not the answer. I knew I had to look elsewhere for the solution.

Once before, when a young squirt, I had been baffled by a Colt Official Police .22 with fixed sights which would not shoot center for me despite the beautiful groups enclosed by the factory. For a couple of months I kept all the Irishmen in the Colt factory busy trying to please me. Fitzgerald, Keily and another tried their hands at sighting-in that pistol with the same results as far as I was concerned. It still shot at eight o'clock. I finally sold the weapon rather than try and puzzle it out.

The .45's were different, though. They were a challenge to the knowledge and experience I had gained in the subsequent years.

Upon examining the two front sights I found the S&W sight suggested an easy and quick solution. I started on that first. Since both pistols had been finally sighted in to shoot at 9 o'clock, I knew the height was correct. So I measured from the bottom of the barrel to the top of the front sight and noted down the height, 1-1/16 inches, for future use.

The front sight, viewed from the rear, has two widths. With a hacksaw I cut off the sight blade, the narrower, upper part. With a file I then trued and leveled the top of the sight base remaining on the barrel. The outlines of the dovetailed slot I expected to cut was laid off with a scratch on one side of the base.

To avoid nasty-looking runovers with the file on top of the sight base, I started the notch with a hacksaw and then finished it with a file. I used a small parallel three-cornered file until I got to the final shaping of the corners of the dovetailed slot. I then changed to a needle-pointed three-cornered file with a fine cut. To form the inside corners of the dovetailed slot, either use it or grind one side of the three-cornered parallel file sharp so the slot corners will not be rounded.

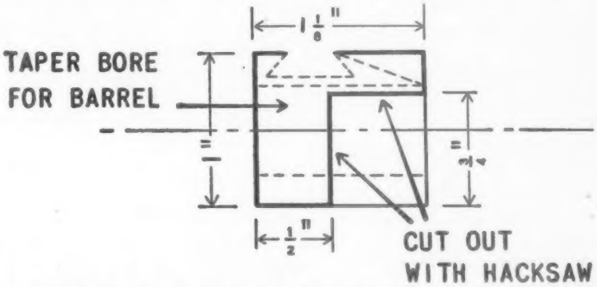

Fig. 2: Dimensions of ramp and band for .45 Colt revolver. Hole for barrel can be cut to fit by measuring diameter at muzzle and one inch back

Next, a small piece of steel was obtained and the hacksaw and files were again brought into play to shape the sight to go into the slot. Since I knew my front sight would have to be offset to the left to bring that 9 o'clock group over to where it should be, I filed my blade off-center slightly so the sight would not appear to be hanging partly off the narrow base. I made the blade ⅛ inch wide and of the shape shown in Fig. 1 because I did not want the sight snagging in holster or clothes. Any desired shape of sight blade can be made,

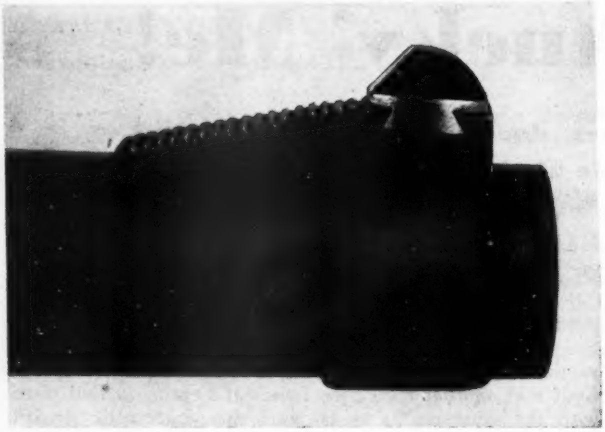

Fig. 3: Since sight blade on .45 Colt revolver is too narrow to serve as a base, it can be replaced with a band and ramp and a blade fitted

of course. When you are at the file, Mac, it is up to you. If you want your pistol for target shooting, an undercut blade would be most satisfactory.

Once the new front sight was cut, shaped and fitted to the base, I again used the calipers to check its height. Since I had purposely made it too high, I marked the proper height on the side of the of the blade. Laying a piece of fine emery cloth on a file, I worked the top of the blade down to scratch. Cutting from the muzzle end in an even curve, leaves a shapely looking blade and a smooth finish.

With a square needle point file I opened the rear 'U' notch to fit the wide, new front sight and then blued both with Van's gun blue.

Having disposed of the S&W sight problem in a few hours, I turned my attention to the Colt. It was a much tougher nut to crack. The original Colt sight was a simple blade of steel, set in a slot cut in the barrel and brazed in place. The blade itself was too narrow to serve as a sight base as on the S&W. The answer was a band.

If it must be a band, why not dress it up and make a ramp, I argued, and so after five seconds of arm twisting with myself I agreed. A ramp it would be.

A block of one inch steel was selected from the scrap box and laid out with dimensions to produce the desired ramp (see Fig. 2). Measuring the barrel diameter just in front of the sight, I found it to be .684 inch; one inch back it was .705 inch. Noting these figures on the sketch for the machinist, I prick-punched and scratched the block where I wanted it bored and cut.

Once the tapered hole was bored I was back at sawing and filing again.

Cutting four corners and then the additional corners thus made, I went as far as I could with the saw and then used the file to complete rough shaping. Holding the ramp ring crosswise in the vise, so as to not mash it out of round, I worked from the front of the ramp ring to the rear, in an arc. I started with a coarse file, changed to a finer one, and then to emery cloth.

The sight base and ramp were shaped with the file after having first cut away surplus metal with the hacksaw. The dovetailed slot was cut with the same methods and tools used in making the S&W sight. The ramp base was polished with fine emery. Then the ramp was fitted tightly to a piece of broom handle, to make it easily handled, and polished on a hard felt wheel using white rouge until a chrome-like surface was achieved. A dovetailed sight, ⅛ inch wide, was made and fitted to the ramp (Fig. 3) and the new sight was ready to attach.

I dug up a Springfield front sight retaining screw out of my plunder box, and drilled and tapped a hole through the ramp and about 1/32 inch into the barrel. While I used this method of attachment, others may want to drill a hole through the block so as to just intersect the barrel at the top; then, after shaping and fitting the ramp to the barrel, drill again to cut the proper slot in the barrel. The hole in the ramp will serve as a guide. A pin can then be fitted through the hole, firmly locking the ramp to the barrel. In finishing the sight base, the pin can be filed and polished with the ramp.

After the Colt sight ramp was fitted and checked by firing, and the final filing was done, all the bright work was warmed and Van's gun blue was applied to soften the glare. A trip to the bluing vat is the next step, after I find time to polish the pistol on the wheel.

If you want to go farther with these fancy, homemade sights of yours, groove the faces of the sight blade and ramp with a fine knife-edge file. I borrowed a "NuTrix" thread cutter for bolts, made by Reiff & Nester Co., Lykens, Pa., and turned out a nice looking job. (If you make many sights, ramps or articles you want serrated, it would be well to look into this item for you have your choice of eight cuts, from 12 to 24 lines to the inch, and the company might possibly have tools with more lines per inch.) In using this tool, make a guide line and start with the first line of teeth in the guide line. Cut slowly and carefully to establish the other teeth in grooves of their own and then deepen as desired.

The purpose of this article is to show that you need not fume and cuss and accept low scores with your fixed-beauty because "hit doan hit whar hit's p'inted." There are many more such pistols in use than the target type and they are just as accurate. To benefit from that accuracy, the shooter must be able to zero the pistol so the shots hit center with his particular sight picture. From my observations I know there are quite a few people who shoot a factory-sighted pistol in about the same place that I do—low left—and not altogether because of jerking the trigger. If such persons like to 'piddle' with pistols, and have a few basic tools and some scraps of steel, they can remedy an offset zero in a few hours just as I did.

A shooter cannot realize a very high percentage of his scoring potential, be he Marksman or Master, unless he can center his groups in the ten ring with his favorite sight picture.

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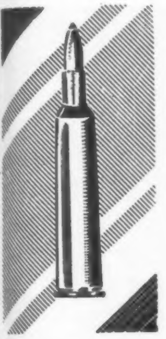
NEXT MONTH: *Continuing the* RIFLEMAN'S *studies of North American big-game animals, look for an article on the Alaskan brown bear, by John Moyer and big-game guide Hosea Sarber. Also, Robert Hutton with a report on trajectories and drop tests with some of the more popular wildcat cartridges, Lyman Woodman with a fascinating account of Hiram Berdan and his Civil War sharpshooters . . . part two of "Beginner's Ballistics" . . . and a cover featuring two ivory-stocked wheellock pistols in the Metropolitan Museum, together with a short article on ivory and gunmaking by Stephen V. Grancsay.*

LOADS FOR .38 SPECIAL

(Continued from page 23)

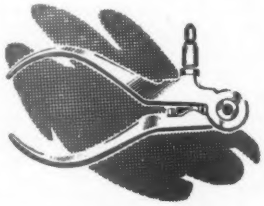
signed. However, one trouble met in boosting powder charge and velocity is leading the barrel. A gas-check bullet has been designed which keeps leading to a minimum in the .38 Special with heavy loads, although the bullet was intended expressly for more powerful .357 S&W Magnum loads which create a problem with leading.

A gas-check bullet for use in the .38 Special and .357 Magnum, known as the Thompson 358356, was designed by Ray C. Thompson, P. O. Box 216, Grand Marias, Minnesota. In solid form the bullet weighs about 161 grains (load 8, Table 2). The same bullet in hollow-point form (loads 2, 4 and 7 of Table 2) weighs around 146 grains. Another very fine semi-wadcutter bullet designed expressly for heavy loads for other than target shooting purposes is the Ideal-Keith. In solid form, the bullet weighs 173 grains and is identified as the Ideal 358429. The bullets of this type we used in the test were the hollow-point Ideal-Keith 358439 weighing 155 grains. The same bullet with a hollow base is the Ideal 358431, weighing 151 grains as we cast them for use in these tests.



Both the Thompson and Ideal-Keith bullets, especially in hollow-point form, have proved destructive with heavy handgun loads such as will be found in Table 2. Several of the loads in Table 2 are on the border line and may be used in some of the better, lighter weight handguns. These are loads 2, 4 and 7. All the other loads in Table 2 should be used only in heavy-frame handguns such as the S&W Outdoorsman, known as the .38-44, and the heavy Colt revolvers in .38 Special caliber. While such loads will not wreck lighter guns of better quality, they are not only severe to shoot but they will soon shake a light gun to pieces or loosen it considerably. Such heavy loads are intended only for a reasonable amount of use in the field, or for defense purposes, and there is no sensible reason in using them for any kind of target shooting. The bullets, however, can be used with normal loads recommended for other bullets of equivalent weight and will usually give very fine accuracy on the target range.

All the loads in Table 2 come well within the pressure standards for the heavy-duty revolver. No load for the heavy guns should exceed 22,000 to 23,000 pounds pressure, nor should any of the regular .38 Special loads listed in Table 1 exceed around 17,000 to 18,000. Heavy loads are usually not only inaccurate but frequently cause undue leading.

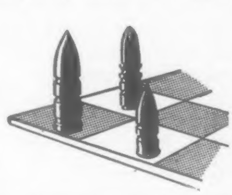


A look over Tables 1 and 2 indicates that pressure and, frequently, velocity for loads with the Thompson gas-check bullet seem somewhat lower than for equivalent loads with a plain-base bullet. This seems to hold true with heavier loads especially. One explainable reason might be that the base of the bullet is not expanded or distorted so much when the bullet passes from the cylinder to the chamfer in the rear of the barrel. At any rate, through all these tests, and other similar handgun tests as well, the gas-check bullets for a given load seem to cause slightly less pressure and sometimes slightly lower velocity. That means that heavier loads can frequently be used with the gas-check bullets, or apparently so anyway, as indicated by a comparison of load 2 in Table 2 with load 9 in Table 1.

When loading heavier charges in .38 Special, a noticeable change in pressure and velocity will be caused by seating depth. Therefore, it is important to check depth carefully when loading near maximum loads.

Another comparison of pressure and velocity with gas-check and plain-base bullets will be found in loads 5, 6 and 7 of Table 2. A full grain and one-half more of No. 2400 powder was used with the gas-check bullet, yet pressure indications were less as compared with 12 grains and an equivalent bullet, as in load 5. There the 12-grain charge of 2400 gave a pressure of 22,670 pounds, whereas the gas-check bullet showed only 16,480 pounds of pressure with 13.5 grains of 2400 powder. It is, therefore, important that all things be taken into consideration if loads of a near maximum nature are necessary.

In looking over powder to be used in the .38 Special for heavier loads, Hercules Unique shows very high and satisfactory velocity in relation to pressure. Hercules No. 2400 is suitable only for full-power loads in the .38-44 caliber. Even then 2400 is sometimes erratic. For example, we took the Ideal-Keith bullets No. 358431, which is the hollow base, and the 358439, which is the hollow point, and used the loads recommended by Elmer Keith in his book *Sixgun Cartridges & Loads*. A load on page 150 lists the Keith hollow-point or hollow-base bullet sized to .358 inch, which we used, and a charge of 13.5 grains Hercules No. 2400. Naturally, Keith cautions that this maximum load should be handled carefully, but we tried it with the two bullets and found it necessary to cut the charges to 12 and 12.5 grains, respectively, as used in loads 5 and 6 in Table 2. With the recommended 13.5 grains and the hollow-base 358431, average pressure for ten loads was 29,140 pounds and velocity was only 1168 feet per second as compared with 1228 feet per second for 12 grains of powder with the same bullet (load 5 of Table 2). With the hollow-point 358439 and 13.5 grains of 2400, pressure was 26,870 pounds and velocity was 1369 feet per second. After cutting the load a full grain to 12.5 grains, velocity was still 1263 feet per second at a safe working pressure.



It is apparent that Hercules Unique is about the best powder to use for the heavier loads in the .38 Special. Some loads which we thought might possibly go into the .38-44 load bracket showed such mild pressure that they were included in Table 1 as regular loads for the .38 Special, indicating that still heavier charges may be developed with the same bullets in heavy-framed .38 Special revolvers. In load 2 of Table 2, the heavy charge of 6.4 grains of Unique is a safe load with the gas-check bullet. That load could be approached with plain-base bullets of equivalent weight and similar seating depth, keeping in mind that the plain-base bullet load may show higher pressure.

Load 11 in Table 1 and load 9 in Table 2 indicate that quite high velocity at reasonable pressure can be obtained with a lightweight zinc-alloy bullet. These loads should be very good for small game. Even at high velocity, the recoil developed is quite mild. The bullets are available from Western Alloy Company, 7215 Atoll Ave., North Hollywood, California.

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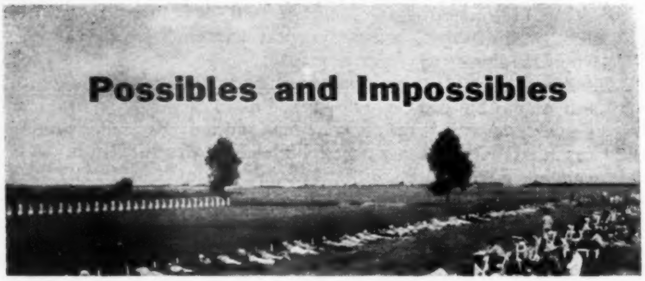
A PAPER FOR PEOPLE WHO SHOOT

Rifle Rem

VOL. 14, NO. 2

BRIDGEPORT, CO ARY,

Possibles and Impossibles



Many of the nation's smallbore shooters will soon be on their way to St. Petersburg for the National Midwinter Smallbore Rifle Tournament. Dates for this important event are March 6 through 10. It is expected that the turnout will equal, if not exceed, last year's record attendance.

The colorful National Midwinter Pistol Matches at Tampa have been scheduled for March 13 through 17. Staged in the heart of the Florida West Coast recreation area, these Matches are a highlight of the winter handgun season.

* * * *

Over the past few years we have been noting the ever-increasing interest in 200-yard smallbore shooting. Many clubs have included the 200-yard event in their regularly scheduled matches — with, we might add, much success. One Eastern club has built an upper deck, above its 100-yard firing point, from which the 200-yard event is fired.

Whether match shooting over the 200-yard distance will ever equal the popularity of the 100-yard course is something that only the future — and the wishes of the smallbore fraternity—can decide.

* * * *

A short time ago we received a 100-yard, 10-shot group, with accompanying letter, from an old friend who has been in the shooting game, both pistol and rifle, for so many years he's probably lost count. The group he sent was a 10X possible — as he explained, "the best of half a dozen, but all had 7 or 8 X's" with "only one 9 in the sixty shots. . . . The best I've ever done outdoors."

He went on to praise the "exquisite trigger adjustment (of the Model 37) and 'Palma' 'Kleanbore'."

Prior to receiving the letter we had a visit from this shooter. In the course of our conversation we learned that he is an avid outdoor shooter who prefers the "elbow room" of a 100 or 200-yard outdoor range to the warmth of indoor shooting—*even in the dead of winter!*

* * * *

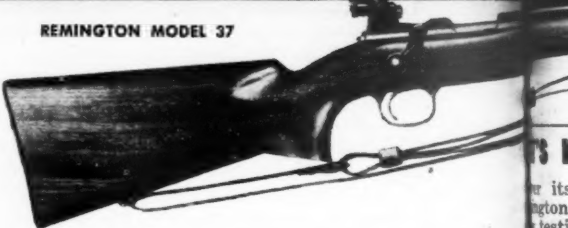
For many years authorities on hunting have recommended that hunters wear some RED apparel, such as a cap, coat or neckerchief, in the interest of reducing hunting accidents. However, "contrary to general belief," says the director of the American Optometric Association's department of public information, "a bright color is not the best safeguard against hunting accidents because about 140,000 licensed hunters are color blind."

He recommends, therefore, that hunters wear a cap or jacket in a bold pattern of black and white. Squares, bold stripes or circles are best.

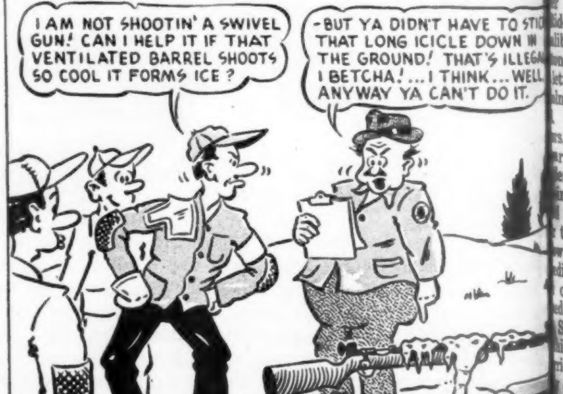
"Palma" and "Kleanbore" are Reg. U. S. Pat. Off. by Remington Arms Company, Inc., Bridgeport 2, Conn.

HOT TARGETS 5C SCORED H

REMINGTON MODEL 37



AROUND OUR CLUB . . . . Frozen A


I AM NOT SHOOTIN' A SWIVEL GUN! CAN I HELP IT IF THAT VENTILATED BARREL SHOOTS SO COOL IT FORMS ICE ?
-BUT YA DIDN'T HAVE TO STIC THAT LONG ICICLE DOWN IN THE GROUND! THAT'S ILLEGA I BETCHA!...I THINK...WELL ANYWAY YA CAN'T DO IT.

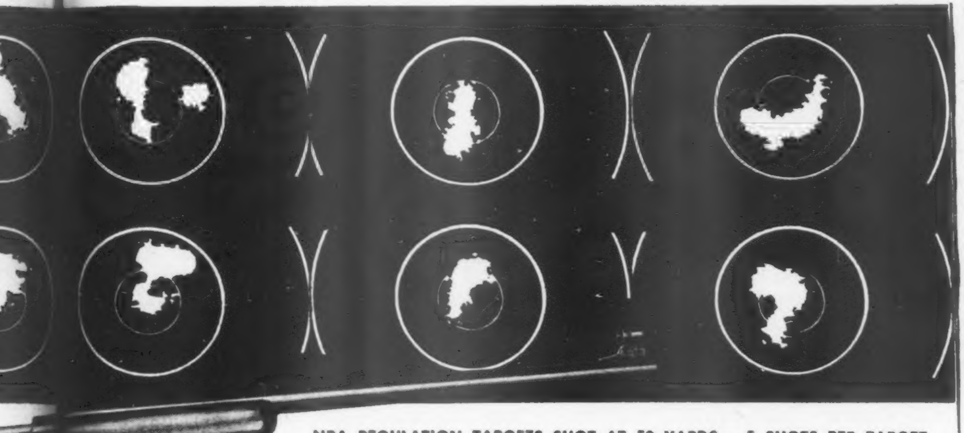
Rem News

WEATHER:
"THIS TOO SHALL PASS"

PORT, C ARY, 1951

First Class Reading Matter for Rifle and Pistol Shooters

S 50 CONSECUTIVE X'S ED H REMINGTON MODEL 37 RIFLE



NRA REGULATION TARGETS SHOT AT 50 YARDS — 5 SHOTS PER TARGET, 10 CONSECUTIVE TARGETS — SHOT WITH REMINGTON MODEL 37 — GROUPS SHOWN ACTUAL SIZE

OUTSTANDING PERFORMANCE A TRIBUTE TO WORLD'S FINEST TARGET GUN

Bridgeport, Conn., Feb., 1951. The 50 consecutive X's shown at the left were made at a Massachusetts turkey shoot. The program called for 30 shots, but this particular shooter, realizing he was hot, shot the 20 extras for a grand total of 50 X's!

The performance is remarkable for two reasons. First, it takes a top shooter, on one of his best days, to punch that many consecutive X's. But it also takes a rifle that is consistently accurate. The Remington Model 37 proved again that it has that consistent accuracy.

The Model 37 is designed and "tailor-made" to suit discriminating target shooters. Its heat-treated steel action is machined to watchmaker's tolerances. Accuracy is doubly safeguarded by a shrouded bolt and the smooth operation of close fitting parts.

Miracle Trigger

And what a trigger! It's so smooth shooters call it the "Miracle Trigger." It's made and adjusted by men who have spent a lifetime working with match trigger mechanisms. There is no hesitation, no backlash. Just a smooth let-off, as easy as the breaking of a crisp lettuce leaf.

Single Sighting Plane

The sighting plane in the Model 37 is, for most shooters, exactly the same . . . whether iron sights or scope is used. The full pistol grip is designed to keep the hand up close to the trigger for more sensitive control.

These and many other advanced features have helped to establish the Model 37 as the world's finest target rifle.

S HISTORY NOW: GEN. CUSTER PRAISES REMINGTON-RIDER RIFLE

rozen A
E TO STIC
OWN IN
'S ILLEGA
X...WELL
DO IT.

r its 135 year history gton has received a good testimonial letters. But the best we ever did get om a young army officer, Custer. Major-General r had used our Reming- ider rolling breech block liber carbine on his Yel- ne Expedition. He wrote tter from Fort Abraham n, D.T., on October 5,

rs. Remington & Sons:

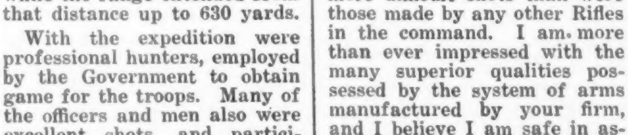
r Sirs . . . . Last year ered from your firm a ng Rifle, caliber 50. I re- the rifle a short time to the departure of the wstone Expedition. The dition left Fort Rice the of June, 1873, and re- d to Fort Abraham Lin- September 21, 1873. Dur- period of three months, ied the rifle referred to on occasion.

number of animals is not so remarkable as stance at which the shots executed. The average ce at which antelope were brought down exceeded 250 yards by actual measurement. I rarely obtained a shot at an antelope under 150 yards, while the range extended from that distance up to 630 yards.

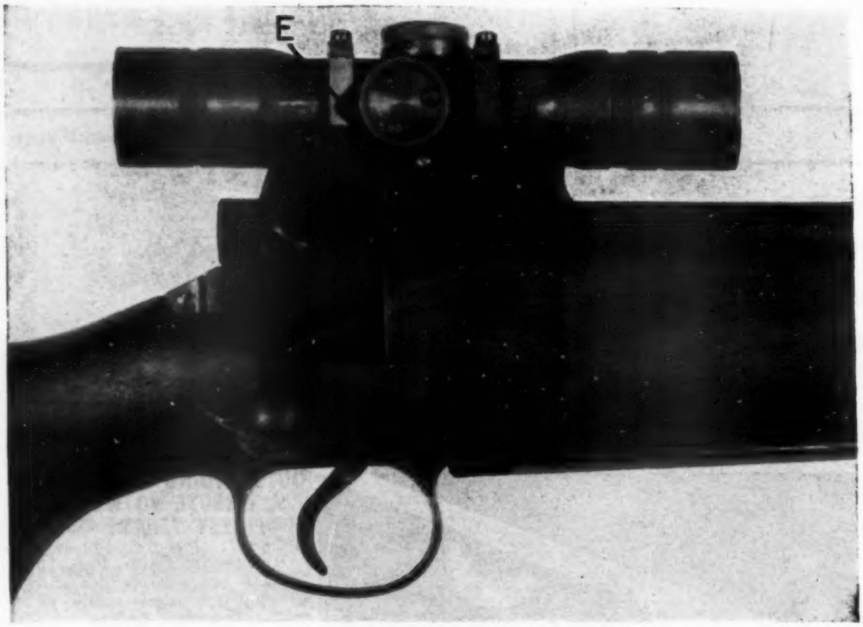
With the expedition were professional hunters, employed by the Government to obtain game for the troops. Many of the officers and men also were excellent shots, and participated extensively in hunting along the line of march. I was the only person who used one of your Rifles, while, as may properly be stated, there were pitted against it breech-loading Rifles of almost every description, including many of the Springfield breech-loaders altered to Sporting Rifles. With your Rifle I killed far more game than any other single party, professional or amateur, while the shots made with your Rifle were at longer range and more difficult shots than were those made by any other Rifles in the command. I am more than ever impressed with the many superior qualities possessed by the system of arms manufactured by your firm, and I believe I am safe in asserting that to a great extent this opinion is largely shared in by the members of the Yellowstone Expedition who had opportunities to make practical tests of the question.

I am truly yours,

G. A. CUSTER,
Brevet Major-General
U. S. Army



The Famous Remington-Rider Rifle



Gw ZF4 6-inch sniper scope can be mounted on an Enfield receiver so that bottom of objective lens is in line with top of milled receiver

A RIFLEMAN
"How to do it"

By Hobart S. White

MOUNT FOR

There are several thousand 'liberated' German sniper scopes in this country bearing the abbreviation Gw ZF4, for *Gewehr-Zielfernrohr 4-fach*, which translated freely means rifle telescope sight 4-power. As indicated, it gives a 4X magnification. In a comparative test, a Weaver 440 gave slightly more than 3X magnification although it is called a 4-power scope. According to a government report (No. 337, Office of the Publication Board, Dept. of Commerce, Washington, D. C.), the Gw ZF4 telescope was developed by Voigtlander und Sohn A. G. of Braunschweig-Gliesmarode, but it was also made by Optikotechna G. m. b. H. of Prerau (a subsidiary of Brunner Waffen Fabrik) and Agfa Kamerawerk of Munchen. Some dealers in this country have advertised these scopes as made by Zeiss, but, according to the government investigation, they were made only by the three firms above. Scopes made by Voigtlander have the code letters 'ddx' and those from Optikotechna have the code 'dow' (see "German Optical Codes", Rifleman, July 1947, page 16).

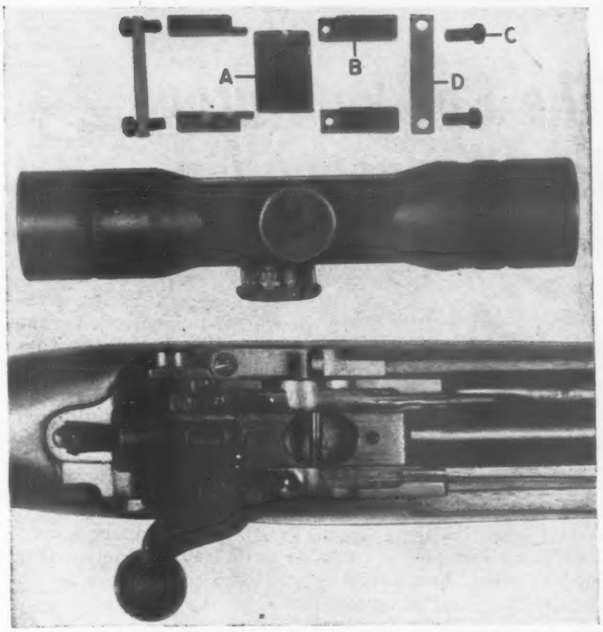
Gw ZF4 telescopes have windage adjustment on the top and elevation adjustment on the right side, with a scale from 1 to 8, evidently for ranges of 100 to 800 meters with German military ammunition. With one of the scopes in its German mount, I securely clamped it in a steady position and set up a special target at 100 yards. On the target, a vertical and a horizontal series of black dots were painted, one inch in diameter and two inches from center to center. With the target, it was easy to observe the movement of the aiming post to the nearest ½ inch as the adjustments were made for each click. On the windage adjustment, the movement was 2 inches per click, or 4 inches per scale division, uniformly over its 32-inch range of 16 clicks. The elevation adjustment is shown graphically in the figure, in which the scale reading and the intermediate clicks are plotted against the elevation in inches at 100 yards. If we use the scale reading as hundreds of yards instead of meters, the scale is very well suited for the .30-'06 cartridge with 220-grain bullet up to 500 yards, as indicated by the crosses on the graph. This is also true for factory loads of .30-40 Krag with 180-grain bullets and the 8-mm. Mauser with 170-grain bullets. If we estimate the range in meters instead of yards, then the scale is suitable for the .30-'06 cartridge with 150- and 180-grain bullets up to 400 meters. Considerable shooting was done with one of these scopes on a K43 with 8-mm. ammunition at 100 yards. The large circles on the graph represent the spacing above point of aim for groups at 2, 4, and 5 settings.

The eye relief is somewhat critical on the Gw ZF4, being between 2½ and 3 inches for the full field. However, I have fired a few hundred rounds with it, from rest, sitting, and prone position, while wearing glasses, and the scope has never touched my glasses nor bothered me in this respect. As would be expected from war-time production and from 4 power in a scope only 6 inches long, the optical qualities at the edge of the field are rather poor; but the resolving power at the center of the field, where it is most needed, is fairly good for a scope selling around $20 to $25.

After using one of these scopes on a K43 German rifle, and finding it practical for spotting and hitting woodchucks in shady and grassy areas at ranges of 200 yards, I decided to try mounting one on an Enfield. The result is shown in the photograph above, in which the scope is mounted so low that the bottom of the objective lens clear aperture is even with the top of the receiver, which is the lowest mounting desirable. It was necessary to grind the bolt handle slightly to clear the bottom of the scope and the elevation knob.

The photograph showing the top of the receiver and the separate parts of the mount is almost self-explanatory. The rear sight and its spring are removed, and the top part of the ears are sawed off ¼ inch above the flat base between them. The saw cuts are 'trued up' and smoothed with files, leaving the top edges about 7/32 inch above the ledge just inside each one, which has been machined at the factory. These ledges are the bases on which the scope rests when it has been fitted in position. With a half-round file, the center portion of the ears are filed away as shown in the photoaphs, this being necessary on the right side for the elevaion adjustment and desirable on the left side for symmetry nd convenience in filing. At each end of the ears, the inard projections are filed until the square portion of the ope can be pushed between them with a snug fit. Care ust be used in filing to keep the thickness of the ears on ach side the same at the front and rear, so as to align the ope correctly when bore-sighting for windage. They are led outward enough to admit the scope snugly, and downard just enough to allow the scope to rest on the ledges inide the ears. This positions the scope securely when it is lamped down. If the factory-machined ledges do not give he correct elevation for bore-sighting, a piece of steel shimtock (A) may be used under the scope at the front or rear; n this particular case, 0.007-inch shimstock was used at the ear to put the point of the aiming post near the center of he field when bore-sighting.

The four upright pieces (B), 7/8 inch long, are made from /16-inch x 1/4-inch cold-rolled steel. The top ends of these re drilled and tapped for the No. 6 steel screws (C). The ottom ends are filed as shown, upward 7/32 inch and with he thickness such that the thin part fits snugly between the ope and the receiver ears. A notch is filed in the right rear pright piece (E, *left above*) so that the elevation setting may e seen. The two top pieces (D), 1-5/16 inches long, are ade from 1/8-inch x 1/4-inch cold-rolled steel, with clearance

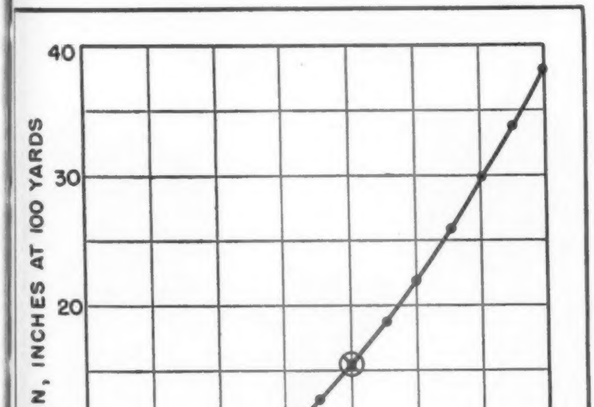


Milled Enfield receiver, scope, and screws and arms for attaching Gw ZF4

ERMAN SCOPE

oles for No. 6 screws 1/8 inch from the ends of each piece.

On each ear, lay out and center punch for two holes 3/32 ich from the top edge, with one 5/16 inch forward from the enter of the rear sight mounting hole and one 1 3/4 inches forward, making a spacing of 1-7/16 inches of the two holes, center to center. Drill these four holes with a No. 47 drill, and then ream out with a No. 43 drill turned slowly by a hand drill so as not to drill too much oversize. From a piece of 3/32-inch diameter steel rod or the shank ends of No. 42 drills, make four pins about 3/8 inch long. Polish the end of each pin with emery cloth, until it will start in the holes. With a straight-edge inside the ears, push each pin in its hole until it nearly touches the straight-edge. They may be pressed in with a press, a vise, or a clamp, or a small hammer may be used. They should be very tight, being a press fit of .001 inch or .002 inch. After being pressed in to the desired position, the outer ends are sawed off and carefully filed down even with the ears, and then polishing with emery cloth will make them almost unnoticeable. With a No. 40 drill, drill a hole 7/64 inch from the bottom end of each upright. Place the uprights in position with the pins through the holes and push the scope down between the uprights. Screw the top pieces on and the scope is mounted. Make the screws fairly tight so that they won't jar loose, but not tight enough to damage the scope or shear off the pins.

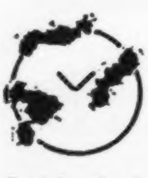


hough elevation scale on Gw ZF4 scope reads in hundreds of meters, rom 100 to 800, it is suitable for use with various .30-'06 loads

After sighting-in at a given range with the desired ammunition, loosen the three screws on the elevation adjustment and turn the knob to the corresponding setting and then tighten the three screws. Likewise, the windage knob may be set to center position by loosening and retightening its screws.

The screw passing through the receiver and having a peep on the left end as shown has nothing to do with mounting the scope. It is a peep sight for use in such emergencies as fog or frosted lens. The regular front sight band was removed, turned to the left 90 degrees and refitted, and the ears were sawed and filed off. The regular sight was removed from its dovetail and a new sight made from 1/8-inch x 1/4-inch steel and having a bronze bead was fitted in the dovetail, which gives elevation adjustment on the front sight. Windage adjustment is made by turning the peep screw in the receiver. The thread is a tight friction fit, so that no locking nut is necessary. The cheek rests snugly against the stock when using this peep on the side as well as when using the scope in its low mounting over the bore. ◆ ◆ ◆

The Rowland group is still unequalled



Editor:

I believe RIFLEMAN readers may be interested in the findings of Joel Hodge, president of the Bench Rest Shooters' Association, and myself regarding the famous Rowland target and the group fired recently by Jack Snyder.

As you know, the ten-shot 200-yard target fired by the late C. W. Rowland of Boulder, Colorado on May 16, 1901, stood for a half century as the smallest group of its kind ever fired, in or out of competition. The other group in question was fired by Jack Snyder of Martinsburg, West Virginia, at the DuBois (Pa.) bench-rest matches fired in May of last year. Until recently it was thought that Snyder's group had finally bettered the record held for so long by the Rowland group.

C. C. Hankins of Buffalo, Wyoming was kind enough to send me the original Rowland target. Mr. Hankins knew Rowland well, and now owns both the original target and the .32-40 Pope Ballard rifle that fired it, both of which he acquired from the estate of C. W. Rowland.

It appeared to me that this group Rowland shot in 1901 was smaller than had been credited. I have seen various measurements attributed to it, such as .825-inch and "around ¾-inch." I had occasion to drive to Johnstown, New York recently to go over the Bench Rest Shooters' Association records and took the Rowland target along. Joel Hodge, BRSA president, lives in Schenectady and has all the world-record targets in his possession. In comparing the Rowland target with the Snyder target, it was obvious that Rowland's group was smaller. Hodge and I then measured these targets optically and arrived at a figure of .725-inch, plus or minus .005, for the Rowland group and .766-inch for the Snyder group. We measured them by measuring the *displaced* paper in a bullet hole, then measuring the total displaced paper in the group and deducting the displaced paper per single bullet hole. Due to the age of the Rowland target—a half century—and the fact that Mr. Rowland had pasted it on a cardboard with another group, we could not measure closer than .005-inch. The Snyder target, on the other hand, was fired in 1950, and we were able to project it to 20 diameters and measure it direct. We believe this measurement of .766-inch to be exact.

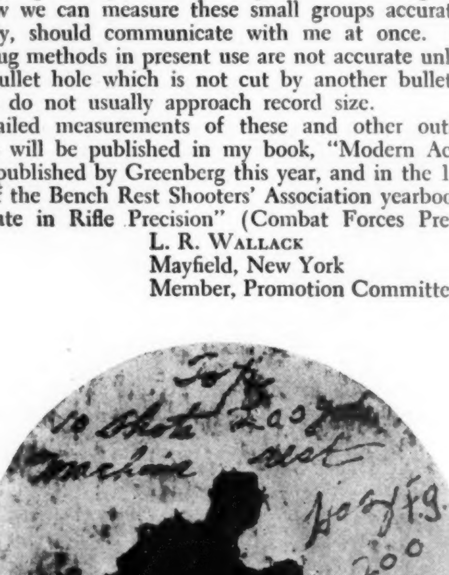
The Snyder group of .766-inch is the world record for ten shots at 200 yards shot from the bench. Mr. Rowland's target was fired from a machine rest without witnesses.

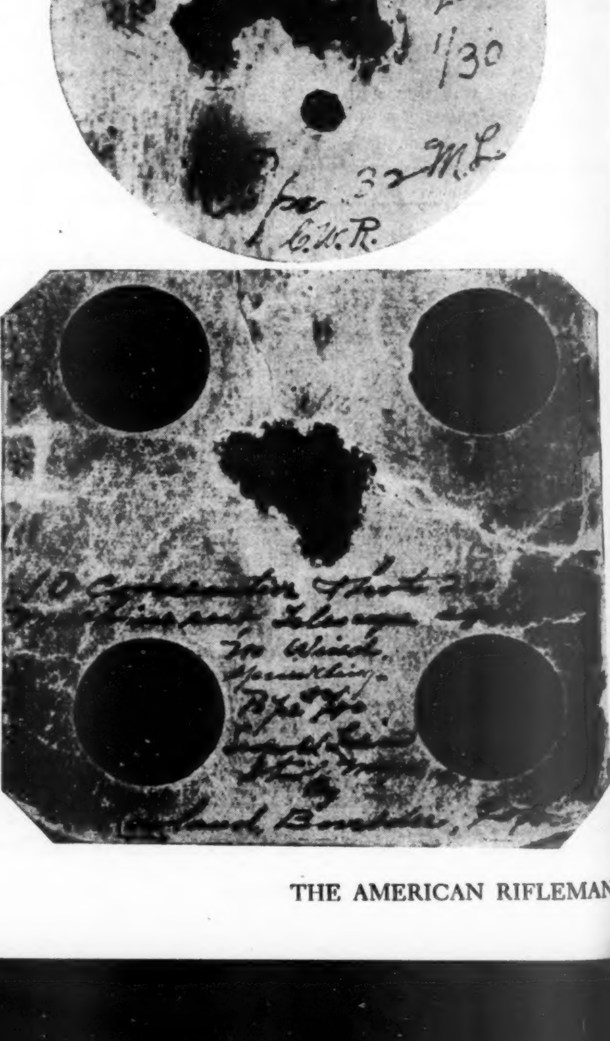
The reader may wonder how and why the original measurement of .717-inch was publicized for the Snyder group. The blame for this lies with the system formerly in use and not with any individual or organization. The target was fired in the DuBois, Pennsylvania, Memorial Day matches and was measured by that club; who caused the wide publicity of the .717-inch measurement, we do not know. The error was not noticed until December, 1950 when I saw Joel Hodge in Schenectady.

The optical system Mr. Hodge and I used is a very slow method of measuring targets; it takes from one half hour to a full hour per target. Thus it is entirely impractical except for world-record targets. Present measuring devices used in bench-rest shooting are not accurate for the measuring of small groups. Any shooter or experimenter having any ideas on how we can measure these small groups accurately and speedily, should communicate with me at once. Plug or half-plug methods in present use are not accurate unless used in a bullet hole which is not cut by another bullet. Such groups do not usually approach record size.

Detailed measurements of these and other outstanding targets will be published in my book, "Modern Accuracy", to be published by Greenberg this year, and in the 1951 edition of the Bench Rest Shooters' Association yearbook, "The Ultimate in Rifle Precision" (Combat Forces Press).

L. R. WALLACK
Mayfield, New York
Member, Promotion Committee, BRSA





The group at right is an exact size reproduction of the famous Rowland target, recently measured as .725 inch, fired at 200 yards from a machine rest. Above right is another Rowland target that was pasted on the same card as the record group. Group at top of left-hand column is an exact size reproduction of the .766-inch Snyder target that had been reported to be smaller than it actually is

Shooting the Free Rifle

(Continued from page 13)

shoulder and a normal stance is taken with the rifle pointed toward the target, it is noticed how far from the bull the sights are pointed. Different range locations often mean differences in slope of the firing line and consequently of target height. The shooter whose rifle is equipped with a palm rest and an adjustable buttplate can handle changes more conveniently than the shooter not so equipped. The shooter who is not properly equipped must shift about and even alter his positions to suit changes. The combination of adjustments in the palm rest and buttplate can put the line of sight on the bullseye very quickly if the error is vertical. If the sights point over the bull, the stem of the palm rest may be shortened or the buttplate can be lowered. Horizontal errors are corrected by shifting the feet to the left or right as required. When the position is just right, do not move your feet between shots unless for a good reason. You may sit down between shots, but it is best not to break up a series of at least ten shots.

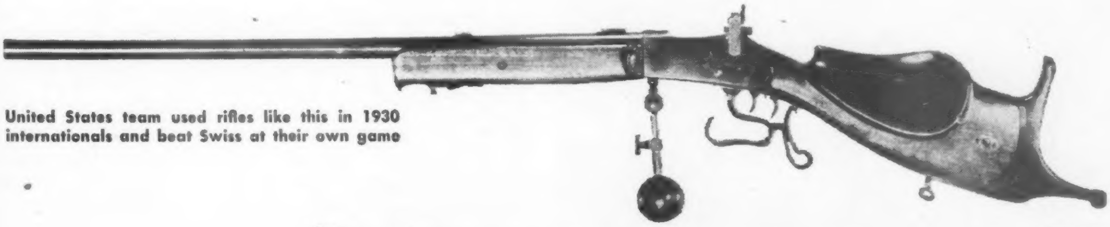
The palm rest is not permitted in the kneeling position, but it is still necessary to go through the routine of pointing the rifle at the target from the normal position. By shifting your position to the left or right, horizontal error can be eliminated. If the sights again point above the bull, lower the buttplate. For the kneeling position we have another aid that was recently included in the revision of our rules. A cylindrical-shaped cushion may now be placed under the instep of the supporting foot. This is another bit of international paraphernalia we have adopted, and for many shooters it fills a long-felt want. Such a cushion may be bought, or it can be made by following the dimensions authorized by the NRA (10 inches long and 4 inches to 6 inches in diameter). For best results, the material should be very firm as the weight of the body would flatten it considerably during a long match. For experimenting as to possible use and size, a strip of carpet rolled and bound is excellent. When in use, the cushion is placed under the instep, and the toe and knee must touch the mat. It is not permissible for the buttocks to touch the cushion. Although the position is excellent, I would not advise discarding the more familiar kneeling position of sitting on the side of the foot, providing such a position causes no strain on the leg muscles. Until 1949 the position in which the shooter sits on the side of his foot could not be used in international matches, but it is now acceptable.

Whichever position is decided on, practice it at every opportunity, even to dry firing at a spot on the wall at home.

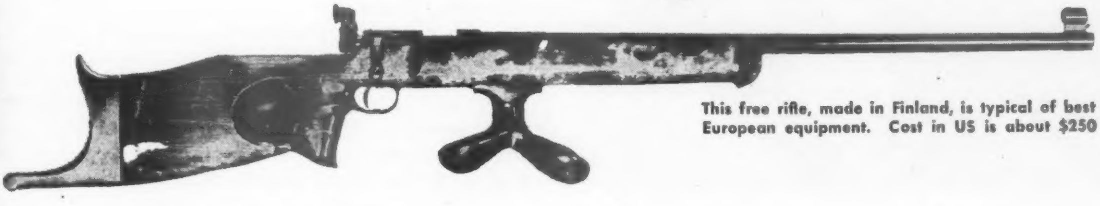
The author uses a Winchester model 70 with a close-to-the-stock palm rest of his own design

It has been proven that kneeling is really the backbone of three-position aggregate scores. With the excellent equipment available, prone scores will vary little—usually a point or two either way. Everything being equal, the shooter who is confident of turning in creditable scores each time from the kneeling position, and thereby maintaining a high average in that position, can well afford to devote additional time to the difficult standing position. Very few shooters remain consistent over a period of time from the kneeling position, and sooner or later a series of poor scores will turn up. Unless the shooter has an excellent foundation in prone and kneeling, his aggregate scores will be erratic. Therefore, it pays to have one less variable to contend with.

In shooting prone with a free rifle having a thumb-hole stock, it will be found that a slightly higher-than-normal position will be necessary, a result of the increased depth of the



United States team used rifles like this in 1930 internationals and beat Swiss at their own game



This free rifle, made in Finland, is typical of best European equipment. Cost in US is about $250

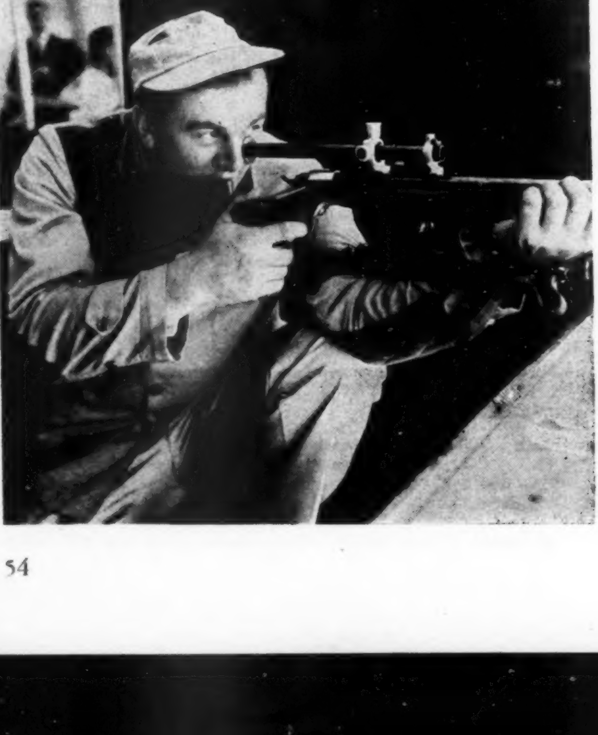
butt stock. The adjustable buttplate is now pushed up to, or even beyond, its neutral position. The support offered by the raised portion is sufficient to form a satisfactory and steady position. Free rifle stocks require the right arm of a right-handed shooter to be held much lower than usual, but you get the knack of it very quickly. Except for these slight differences, the prone position is the same as always.

Free rifles tend to weigh more than the familiar prone rifles because of the special buttplate and increased bulk of the stock. Within an individual's limit, weight has a steadying influence in the kneeling and standing positions. As is often the case, some shooters will at first 'over gun' themselves but experience is a good teacher. Very heavy rifles add little to accuracy when shot from the shoulder, and unless you are an exceptionally strong man, they'll tire you out. A rifle weighing fourteen or fifteen pounds should be about tops for both rimfire and center-fire rifles.

In contemplating the building of such a rifle as would be used in 300-meter matches, the choice of an action is of prime importance. With so very many military and commercial actions available, the selection must be left to the individual. My preference would be a bolt action that permits the mounting of an extension rear sight, and one that is adaptable to the best obtainable trigger mechanism. What is needed in the trigger is the positive and unfailing certainty of accepting very light adjustments. This applies to either single triggers or to double set-triggers that may be adjusted to release when only a few ounces of pressure is applied. Money spent in tuning an action for more efficiency is money well spent, and it will pay off in scores later on.

Most representative teams competing in international programs use rifles that are chambered either for the service cartridge of their country, or for match grade ammunition available in their own country. An opinion shared by the U. S. rifle team in 1949 was that the .30-'06 cartridge is not good enough for the 300-meter (328 yard) target. The large case is inefficient for the moderate loads in common use, so we must find something more suitable. However, if a shooter believes that full charge .30-'06 match loads do not affect his scores, and his scores are good, there is no reason for a change in case. Personally, I consider the recoil too bothersome for position shooting.

August Westergaard, Whiting, Iowa, used old-time Ballard rifle in 1949 internationals at Buenos Aires, Argentina



For the selection of a center-fire cartridge we may find ourselves at a loss to decide. We can look to the bench-rest shooters for such a cartridge as they have had excellent results at 300 meters, turning in groups that are often under one inch. Such groups are exceptional, however, and they should not entirely govern the choice. The averages of groups fired under all weather conditions are the things to look for. What is wanted is a cartridge of mild recoil, using a bullet of fine wind bucking abilities and inherent accuracy. A 3 15/16-inch ten ring is very small and seems more elusive if you are shooting a load that rides with the wind. The only hitch involved is that the bench-rest shooters, for the most part, tend to work with 'wildcat' cases that are not standardized. In any case, handloading will be involved. If your choice is a standard case such as the .257 Roberts, .250 Savage, 6.5 mm, 7 mm, or even the .300 Savage, the best commercial ammunition cannot equal the hand-loaded variety that may be assembled with care at home. The reason is simply that commercial ammunition in these calibers is constructed for hunting purposes and not for accuracy alone. These cartridges can be reloaded with a minimum of equipment and experience to produce excellent results at low cost. Because the cases are standard, they may be purchased empty from most dealers and used without the additional forming operations required for many wildcat designs. In addition, the reloading data published in the AMERICAN RIFLEMAN for these cartridges can easily cut away most of the experimenting for a suitable load.

The barrel should be the best obtainable, made by a reliable barrelmaker and fitted and chambered by an interested, competent gunsmith. Again I must remind you to shy away from the bench-rest size. While they may not look or feel too heavy as a barrel blank, the addition of action, stock and sights will add considerable weight and result in a heavy rifle.

In the rimfire class the problem of an action and barrel is much simpler. Two well-known match rifles, the Winchester 52 and the Remington 37, are excellent for the purpose. It should be made clear that the more alike your two rifles are in weight, balance, and appearance, the easier it will be to switch back and forth. With two rifles that are alike except in caliber, the shooter has the advantage of extensive practice and competition during the gallery season. Then, when the outdoor ranges are open, he can readily change over to his center-fire rifle.

Most of the outdoor ranges throughout the United States are designed for prone shooting and afford scant protection from the wind for position shooting. True, many of them now have covered firing points but the roof is often too low for the standing position. Temporary stalls or wind breaks can be made with lightweight cloth and a few well-anchored poles. Such a set-up was used with success at Bisley, England, for the 1948 Olympics. The purpose of the wind break is to keep the wind from disturbing the shooter's position. If the prevailing wind at your range is from three or nine o'clock, you are very fortunate. One partition is all that is required—you simply shoot from the side opposite the wind. A stool and a small table will complete the range equipment. It is suggested that the habit of loading the rifle from such a support be acquired. ISU rules discount accidental shots, providing the barrel has not cleared the support or the butt is grounded. Rifles with less than perfect set-triggers have a habit of going off occasionally during the loading operation, and this rule takes care of the situation. Emmett Swanson had two accidental shots during the kneeling stage of the World Championships at Buenos Aires in

1949, but the rifle butt was touching the mat and two additional shots were permitted.

When the major items of equipment have been selected and practice has begun, you may notice that "something else" is affecting your scores. The following suggestions and ideas may be worth trying. They are not one man's opinion but have been experimented with and used successfully by many experienced riflemen. In rifle competition, as in all tests of marksmanship, and in sports in general, it is the attention to small details that makes the difference between a champion and a run-of-the-mill competitor.

The majority of gallery position shooters give little thought to their shoes, much less to the trousers they wear. As a consequence, these shooters work harder at each position and are penalizing themselves in point score. Trousers of a loosely-woven material—not hard surfaced—reduce the tendency of the supporting elbow to slide in the kneeling position. Shoes that add to the support of the feet and ankles, thereby tending to brace the entire body, are an advantage in kneeling and standing. If a cushion is used in the kneeling position, some support for the body weight must be taken by the foot. Properly-fitted ski boots, with their hard toes and stiff soles, seem an ideal choice. Woodsman shoes, hard-toe work shoes, and GI field shoes are also good. Worn, run-over heels will detract from the sturdy support offered by such shoes and should be replaced.

In the U. S., few restrictions as to thickness of padding are placed on shooting jackets, but the shooting jackets used in this country are not permitted in many countries. Commercial jackets are practically unknown in Europe, and therefore the individual must make his own. ISU rules permit only 8-mm. pad thickness. Sleeve pads must not exceed 6⅜ inches in width and cannot extend more than 4 inches below the point of the elbow. There is no restriction to the area covered by the shoulder pad and it often extends under the arm. (If the jacket material is not so protected, the prong butt will soon wear through.) To counteract these seemingly thin pads, and to reduce pulsation, sweaters or sweat shirts are worn underneath the jacket. Slings not wider than 1 9/16 inch may be used for prone and kneeling. Gauntlet shooting gloves that extend beyond the wrist joint cannot be worn in ISU competition, but ordinary dress gloves may.

The pads of a jacket should be kept soft and pliable with neatsfoot oil. If the leather surface becomes glazed, which is a handicap, use coarse emery paper to roughen it. The occasional use of rosin on the shoulder pad will make a noticeable difference in preventing steel buttplates from slipping. The Five and Ten stores sell a plastic compound that may also be used. The rough black appearance may not be neat but it does the job—especially on the elbow pads.

Center-fire rifle barrels throw off heat which is visible in waves along the sighting plane (mirage), making it impossible to obtain a consistently uniform sight picture. The Finns overcome this difficulty by simply attaching a strip of black cloth to the front sight base, drawing the other end back, under elastic tension, and clipping it in place at the receiver. The cloth deflects the heat to either side and permits air to circulate. Some such device is needed for extended courses of fire, even if it's friction tape.

As a point of interest it might be said here that rifle ranges throughout Europe and South America are designed for pit marking in both .22 caliber and center-fire shooting—with only one target framed at a time. When a shot is fired, the value of the hit is signaled and the hole is covered with a transparent sticker. In smallbore prone events, the target is removed after the second shot and replaced with another. At 300 meters ten shots are fired at each record target before a change is made. At the completion of each stage the targets are scored officially by as many as five judges, depending upon the importance of the competition. No foulers and only ten sighting shots are allowed in each forty-shot stage. The rule applies to 50 meters as well as 300 meters. Such a system is necessarily slower and much more difficult than the match procedure we know. It requires constant attention to the wind without reference to a practice target. The ten sighting shots may be taken at any time but a series of ten record shots cannot be broken. Time allowances are adequate for the many changes of targets and for the obvious reason of preventing worry on the part of the shooter if pit service slows down. A total time of six and one-half hours is given at 300 meters and six hours at 50 meters. As it takes a full day to complete these 120-shot matches, the time is usually divided by a lunch period.

Little difficulty will be had in setting up for 50-meter practice and match shooting. The dimensions of the target we use are identical to those authorized by the ISU. One slight difference is that our target has one less black ring. Practice at 300 meters may prove to be a problem due to the lack of ranges. This difficulty was foreseen and a new 200-yard international-type target has been brought out for use in the U. S. It is actually a 300-meter target proportionately reduced for use at 200 yards. Most smallbore shooters have used the 200-yard metric target at one time or another and a comparison of dimensions should indicate how difficult these International targets are:

	International 300 Meter:	International 200 Yard:	Metric 200 Yard:
X ring	1-31/32 inches	1-13/64 inches	2 inches
10 ring	3-15/16 inches	2-13/32 inches	4 inches
9 ring	7-29/32 inches	4-13/16 inches	8 inches
8 ring	11-7/8 inches	7-7/32 inches	12 inches (Black)
5 ring	23-11/16 inches (Black)	14-3/8 inches (Black)	

The following scores are records in world championship competition. There have been higher scores fired in Nordic and Scandinavian competitions but, for us, these are the records to aim at.

50 Meters, Three Positions, Free Rifle

Prone	**400**	K. Manttari	Finland	(1939)
Kneeling	**393**	R. Burchler	Switzerland	(1949)
Standing	**380**	J. Mazoyer	France	(1937)
Agg. Score	**1167**	K. Steigelman	Germany	(1939)

300 Meters, Three Positions, Free Rifle

Prone	**393**	S. Lindgren	Finland	(1939)
Kneeling	**381**	B. Ronnmark	Switzerland	(1933)
Standing	**364**	K. O. Elo	Finland	(1949)
Agg. Score	**1124**	E. Kiristik	Estonia	(1937)

Other interesting scores could very well lead off with the 590 credited to K. O. Elo of Finland, winner of the 300-meter World's Championship at Buenos Aires in 1949. The score was fired in the spring of 1950 at 50 meters, twenty shots in each of three positions. Skredegoard of Norway has a 398 kneeling and Janhonen a 387 standing at 50 meters. Janhonen is the same Finn who won the 50-meter Championships at Buenos Aires. The Finns again lead the parade at 300 meters with a 397 prone by Rantala, a 385 kneeling by Leskinen, and a score of 370 standing by Frietch, a score that has been duplicated by Kukk of Estonia. The highest recorded and witnessed practice score ever fired was a 399 prone by Sigurd M. Vik of Norway.

If you stop for a moment and think about these scores, all fired with metallic sights, you will agree that American shooters have much to learn about the techniques of position shooting. It will take considerable work and enthusiasm on our part to do it, but I'm looking forward to that day when one or more U. S. riflemen will be listed among the record holders. The first step was the relaxation of restrictions on our equipment; the second step is up to you and me. ◆ ◆ ◆

Pump Gun in Reverse

RECENTLY I TESTED a most ingenious repeating shotgun that my friend Frantz Rosenberg brought from Norway. The gun is a Norwegian invention. It has the quickest, simplest take-down features of any pump gun I have yet seen. One merely presses a small button on the right side of the trigger guard and pulls the gun apart, leaving the mechanism attached to the stock and trigger guard. The barrel assembly incorporates the barrel extension and the fixed fore-end. The gun is a 20 bore with 24-inch barrel weighing but 4½ pounds.

The interesting aspect of the gun is the operation of it. The shooter fires, then pushes forward and pulls back on the fore-end, and fires again. The procedure of cocking the gun is the exact opposite of the usual pump gun.

The action is a very strong one of the falling block variety. Cams on the action guide raise the block and lock it securely in recesses in the barrel extension on each side of the chamber. When the fore-end and barrel assembly is pushed forward, the cams in turn pull the block down out of engagement with the barrel extension cuts, thus unlocking the breech, but the barrel must move forward considerable distance before the breechblock unlocks from the barrel extension, making it a very secure action.

The gun has its faults and capacity is limited to but two shots. When the barrel and fore-end and barrel extension are pushed forward to operate the action, some six inches of the whole action are exposed to the elements. However, the gun operates almost as fast as a frog flicks his tongue out to catch a fly, so the fault is not too serious. The gun offers the single sighting plane that so many shooters prefer on a two-shot gun and is about the lightest in weight I have encountered. Recoil is sharp but not bad.

The gun has been patented in practically all European countries and in the United States. The firing mechanism is fixed to a 7-inch-long, flanged, hollow steel tube containing loading gate (corresponding to an opening in forearm) and acting as magazine for the two cartridges. The firing and locking mechanism is a compact unit fixed at the rearmost end of the hollow steel tube against a solid standing breech. The whole assembly is fastened to the butt stock with a long steel bolt as in the Savage model 99 rifle. The firing mechanism consists of a normal hammer, trigger, main and trigger springs, and safety slide on top as in normal double shotguns. Repeating movement of firmly fixed forearm is short and positive.

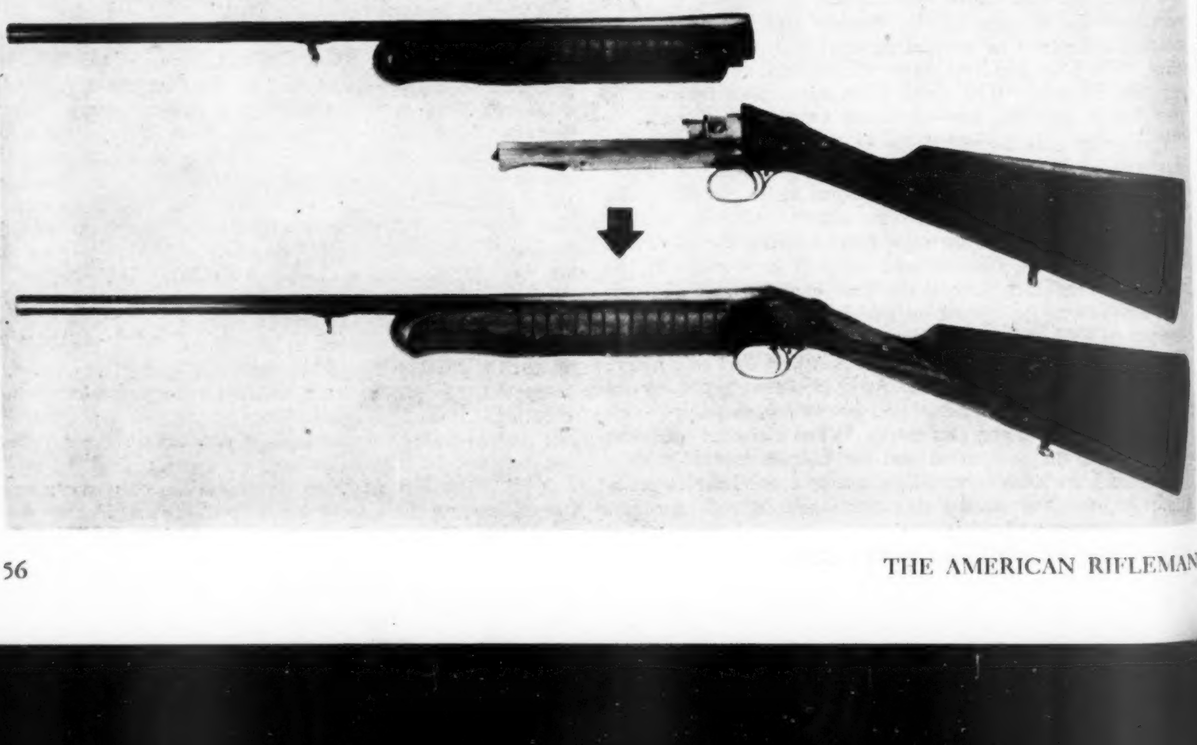
To assemble the gun the shooter starts the action guides into the mortises in the fore-end under the barrel and forces the barrel and fore-end back until the action is closed and locked by a small plunger at the right of the trigger guard. During this operation the hammer is being cocked, and the gun is ready to fire. Upon pulling the trigger the hammer falls, hitting the striker in breechblock, firing the cartridge and at the same time releasing the barrel for a forward repeating push. But during the movement the breechblock is still firmly locked to the barrel for about an inch travel, when the breechblock slides along an incline and is then released from the barrel assembly, like in the Colt .45 pistol.

To load, the shooter inserts a cartridge through a trap in the bottom of the fore-end and pushes it back until the cartridge guide spring catches the head of the shell. A small knob on the right-hand side of the trigger guard is pressed, then the shooter pushes forward on the barrel assembly until it hits the stop, and then pulls the barrel back against the action and receiver until it locks. A second cartridge is inserted in the same manner.

This Norwegian repeating shotgun action is well stocked and handles very fast and has the best safety we have seen on a repeating shotgun. Its reverse action may be even faster than conventional pump guns, for the reason that you push forward on the fore-end to operate the gun while it is in recoil and then pull back on the fore-end to close the action and load the barrel. Pulling back in the final operation helps pull the gun down out of recoil and onto the next target. Frantz Rosenberg has shot it a considerable amount even at 16-yard traps and in his hands it operates like chain lightning. However, he is one fine shotgun shot.

The gun will be manufactured in Norway, and coming models will be refined as to outline and finish. It will also be made with larger bores, though such a light gun would seem best in 20 bore and 16 bore.—ELMER KEITH.

This 20-bore Norwegian shotgun, with a very simple takedown feature, is operated by pushing the fore-end forward. The gun weighs only 4½ pounds



THE SPOTTING SCOPE -- February 1951

C. B. Lister, NRA Executive Director, is home again after a long hospital siege. "Lis" is recovering rapidly from the illness which struck him last summer. A major operation was required to put him on the road to good health . . . San Francisco is building a $25,000 range house on the Sharp Park range . . . The winter meeting of the NRA Executive Committee will take place late this month in Washington, D. C. . . . The National Intercollegiate Championships will be fired on April 7. Herbert Voelcker, Massachusetts Institute of Technology, will defend the individual crown and West Point the team title. Two weeks later, on April 21, Marlene Bellinger, of Seattle, Washington, and the Detroit Edison Jr. Rifle Club team will try to become two-time winners of the National Junior Championship crowns . . . NRA staffman John Rose returned to active duty in the Air Force this month. Rose, the fourth staff member called to active duty in as many months, will fly jets as a major . . . Executive Committee member Frank Parsons' new junior shooting classes are drawing city-wide attention in Washington, D. C. . . . Major Richard M. Parsons, the British Army, recently won the King's Medal for the second year in a row. The medal goes with the British Army rifle championship. Camp Perry veterans will remember the Major as the British observer of the 1946 Dewar Matches.

The Distinguished Pistol Shot Gold Medal, highest pistol marksmanship award given by the Navy, was presented to Captain John Quinn last month. Only 23 of the medals had previously been awarded to Navy personnel. Captain Quinn qualified for the medal by winning credits in the 1929 and 1949 National Pistol Championships and the 1950 Service Pistol Team Match . . . Washington State Rifle Association is now publishing an excellent monthly shooting bulletin edited by the WSA president, Alice Bull . . . Arrangements have been completed for the first Women's International Postal Rifle Match between England, Canada, and a New York State team. A second match will soon be conducted between teams from Scotland, Wales, South Africa, Australia, Norway, and Sweden. Any ten women residents from the same state may compete in the matches. For details write Eleanor Dunn, 2922 Grand Concourse, New York 58, N.Y. . . . NRA member Cecil B. DeMille, the movie producer, is the owner of one of the finest gun collections in the United States . . . The Gates Rubber Company of Denver, Colorado, is the latest firm to build a new shooting range for its employees . . . Albert Stoll, 66, outdoor columnist for the Detroit News and long-time friend of the NRA, died in December. He was the founder and conductor of the first outdoor page in an American newspaper.

As an outgrowth of the "sniper" shootings in Philadelphia, Public Safety Director Samuel Rosenberg is crying loudly for a state law registering all firearms. New Jersey Attorney General Parsons is also telling the newspapers again that New Jersey needs firearms registration, this time to prevent madmen like Ingenito from killing innocent persons. This seems to be standard practice for some officials when they don't want to be asked why the laws already in existence are not properly enforced.

The new junior air-rifle program is getting favorable editorial reaction from all over the United States . . . Marksmanship, Inc. is a great success in La Crosse, Wisconsin. The civic and patriotic clubs, parents-teachers groups, and rifle and pistol clubs which got together to incorporate in 1948, have since opened indoor ranges throughout the city. They are in operation one night each week for all youths in the community. A regular shooting schedule accommodates as many as 1,000 boys between the ages of 9 and 19 . . . Buck Rogers, recreational director of the Veterans of Foreign Wars, and NRA secretary Frank Wyman, who is also Director of Shooting for the VFW, are setting up a large junior shooting program which they hope will reach all posts . . . Rear Admiral Morton C. Mumma, of the NRA Executive Committee, has gone back to active service. He will be stationed in Washington, D. C. with the Planning Division of Selective Service . . . February is a good time to plan your October vacation attending the 3rd National Rifle Association Convention in San Francisco.

Paul Cardinal

Four NRA Members to Represent US in Pan-American Shooting

United States shooters will be represented in the shooting events of the Pan American Games by riflemen Arthur Cook, 22, Washington, D. C., and Arthur Jackson, 32, Brooklyn, N. Y., and pistol shooters Technical Sergeant Huelet Benner, 34, USA, Ft. Knox, Ky., and Harry Reeves, 41, Detroit, Mich. The tournament will be fired in Buenos Aires, Argentina from February 26 to March 7. The Pan American Games are conducted as part of the Olympic program and as such the selected representatives were made by the Olympic Rifle and Pistol Shooting Committees.

The four men named are veterans of international competition. Cook, Jackson and Benner represented the United States in both the 1948 Olympics held in London and the 1949 International Matches held in Buenos Aires. Reeves was not a member of the '48 team but was in South America in '49.

Of the international quartet, Cook has the most successful record in world competition. While still in his teens, the Washington "boy wonder" won first place and a gold medal for the U.S. in the Olympic smallbore competition. In '49 he took second place in a smallbore free rifle, 8th place in the all prone smallbore match and 11th in the Argentine Cup, long range free rifle. In United States smallbore competition, Cook has been an outstanding shooter for many years having held the national junior title in 1946 and the national senior championship in '48.

Jackson, the second rifleman on the United States squad, has been one of America's finest and most consistent marksmen for over a decade. In Buenos Aires in 1949 he won the world's individual championship in the all-prone smallbore event against the world's best shots.

The pistol men in the United States squad Reeves and Benner, are undoubtedly two of the greatest handgun men ever to press a trigger. Between the two of them they share almost every record in the American book and have held the National Pistol Championship since 1940. Reeves took the crown in 1940, 1941, 1946 and 1948 while Benner came through in 1947 and 1949. The national championship was not contested from 1942 to 1945 and again in 1950.

In the 1949 international championships, their records were again about the same. Benner won world's championship in the spectacular rapid fire silhouette match. He was also third with his revolver in the centerfire match and eighth in the time honored free pistol championship. Reeves was second in the free championship, second in rapid fire silhouette, fifth in the center fire match and sixth in the difficult defense championship match.

In mid-summer it was decided that the unsettled condition of world affairs made it impossible to plan for the 1951 Pan-American Games competition. In December the question was again presented to the Executive Committee and the decision was reached that representatives should be sent in order that the splendid feeling of good sportsmanship, good fellowship, and general good relations developed by the 1949 team could be cemented into stronger friendships this year and be beneficial to all western hemisphere countries.

The Olympic Pistol Shooting committee, made up of Karl T. Frederick, Alexander Leslie, C. B. Lister, Fred Miller, Charlie Logie and Staley Wolff, was unanimous in the selection of Benner and Reeves as the U. S. pistol representatives. The two men are so outstanding in their field the committee felt no other selection was logical.

The selection job of the Olympic Rifle Shooting committee, made up of Major General Merritt A. Edson, C. B. Lister, Major General Milton A. Reckord, Karl Frederick, J. Alvin Badeaux and Frank Parsons, Jr., was more difficult. After a long review of the national and international shooting performances of many competitors Cook was selected unanimously because of his outstanding record.

Based upon experience and ability, the second place selection was a difficult choice between Jackson and Robert Sandager of Minneapolis, Minn. Sandager, however, solved the committee's problem himself by announcing he could not make the trip because of business reasons.

The two committees made their selections without fired tryouts because they were found to be impractical due to lack of time and because of the impossibility of outdoor shooting over the majority of the United States during the winter months.

In addition to the four shooting members, a non-competitive team official and U.S. representative will make the trip. He will be named at a later date.

The squad will travel by air, leaving about February 20.

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OUTDOOR TOURNAMENT SCHEDULE

A schedule of 1951 outdoor registered rifle and pistol tournaments will be published about April 15. A letter has been mailed to all NRA clubs and to tournament sponsors together with an application to be used for reserving dates for registered outdoor tournaments. Additional copies will be supplied to interested persons upon request. In order to be included in the schedule reservations must be received at the NRA by March 15, 1951.

State Associations are urged to hold meetings of the clubs within their area for the purpose of scheduling the season's rifle and pistol tournaments. It will help to coordinate the tournaments and avoid conflicting dates. These conditions can be best judged right there in the area by club officers who know local shooting conditions. Such meetings have been used in several locations with very satisfactory results.

One of the best means of advertising a registered tournament is by listing it in the tournament schedule. The schedule is mailed to 35,000 competitors, 7000 club secretaries and NRA Referees. It gives them an opportunity to view the tournaments scheduled for the season and select those that best fit into their plans. Early planning for the season's shooting will allow business and vacation planning without hardship.

Clubs should make sure their application reaches the NRA prior to March 15, 1951. It is not necessary to have every detail of the tournament worked out. Reserve the date and the program can be worked out later.

INTERCOLLEGIATE TITLE DATE

The 1951 NRA national inter-collegiate team and individual championships will be fired on Saturday, April 7, 1951. The shoulder-to-shoulder championship events will be fired in 15 sectional tournaments.

Tournament locations, programs and other details will be mailed to all NRA, college and university teams. The mailing will be made about March 1st.

Last year 86 teams and 459 individuals fired in 12 sectional tournaments for the national crown. Because of the increased number of entries expected this year, three more shooting locations have been added.

Entry forms will be included in the mailing sent to all colleges.

JUNIOR RIFLE CHAMPIONSHIPS

The seventh annual NRA junior shoulder-to-shoulder rifle championships will be fired on Saturday, April 21. Thousands of young shooters in every part of the country will meet in the sixty sectional tournaments which will be fired to decide the national crown. The Hawaii and the Canal Zone sectionals will be fired one week early.

Special awards will be given to every type of representation in the championships including non-military scholastic, military scholastic, non-scholastic and special awards for teams and individuals representing NRA affiliated VFW junior clubs.

Programs, entry forms and other details will be mailed to all NRA junior clubs about March 1st.

Dates and Sites of 22 Regionals Set

Eleven smallbore regionals and eleven pistol regionals are planned for 1951. Competitors who want to fire in the national championships in late September or early October will have to qualify in a regional. Sites and dates for regionals are shown below on the maps and listings. Following the plan of several years the sites have in many cases been moved from those used in 1950, both in order to give competitors an equal chance to attend without excessive travel and in order to permit new organizations to improve their ranges through use of the tournament income.

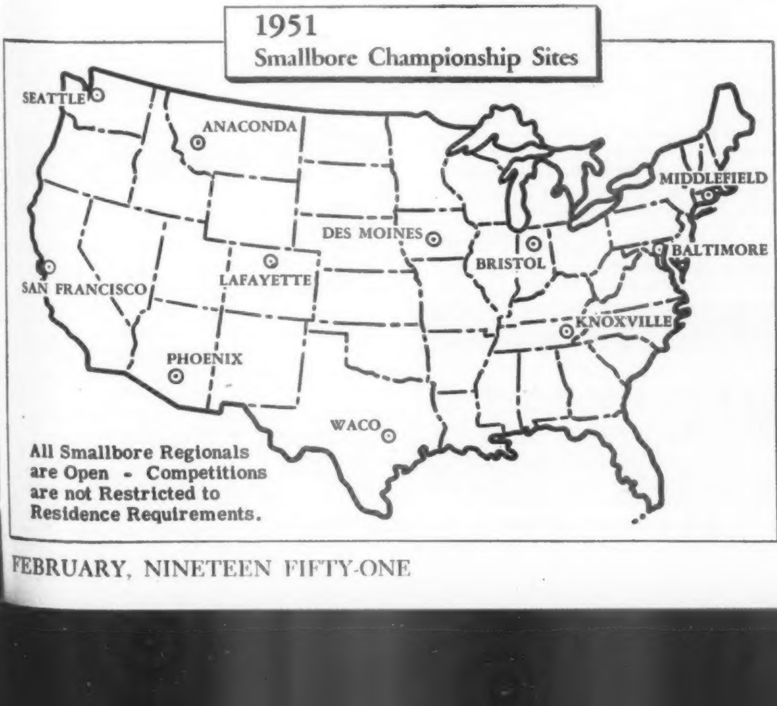
The entire income of all match entry fees is retained by the organization conducting the Regional. The NRA furnishes a complete schedule of awards for all regionals. In the case of the pistol regionals, the conducting organization may provide additional prizes if desired. The award schedule has been increased since the 1950 regionals and more class medals are being offered this year.

Eligibility requirements are the same for the 1951 regionals as they were last year. Based on the pistol committee's recommendation the regional boundary lines of 1950 are retained and are as shown on the map. Competitors are eligible for the regional championship grand aggregate match in the regional tournament for the region in which they maintain residence. In accordance with NRA pistol rules, they may not enter any other regional championship grand aggregate match. Pistol competitors may, however, attend all or any regional they wish and compete in all or any of the matches except the regional championship grand aggregate. Foreign pistol competitors who hold NRA non-residence membership and reside outside the U. S. are eligible to compete in regional tournaments provided they enter the regional nearest their place of residence.

Smallbore competitors may select the regional tournament they wish to compete in without regard to their place of residence. Competitors may, however, compete in only one 1951 regional smallbore tournament. This restriction to only one 1951 regional smallbore tournament applies to all matches on the program, fired matches and aggregates as well as team and individual matches.

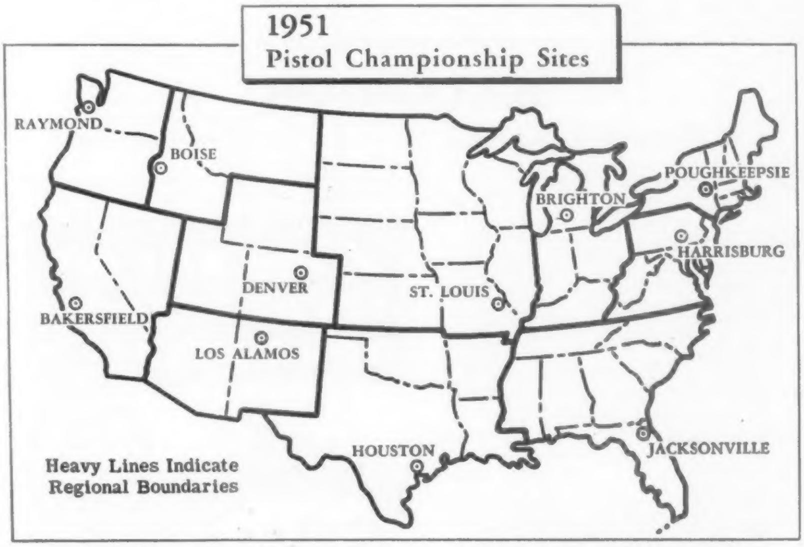
1951 SMALLBORE REGIONALS

1. Far Southwestern; Phoenix, Arizona—May 12-13
2. Southwestern; Waco, Texas—June 23-24
3. Midwestern; Des Moines, Iowa—June 30-July 1
4. Northwestern; Anaconda, Montana—July 7-8
5. Northeastern; Blue Trail Range, Middlefield, Conn.—July 14-15
6. South Pacific; San Francisco, Cal.—July 21-22
7. Middle Atlantic; Baltimore, Md.—Aug. 4-5
8. Southeastern; Knoxville, Tenn.—Aug. 4-5
9. North Central; Bristol, Ind.—Aug. 4-5
10. Rocky Mountain; Lafayette, Colo.—Aug. 4-5
11. North Pacific; Seattle, Wash.—Aug. 11-12


1951
Smallbore Championship Sites

1951 PISTOL REGIONALS

1. South Pacific; Bakersfield, Calif.—May 18-19-20
2. Southwestern; Houston, Tex.—June 15-16-17
3. Middle Atlantic; Harrisburg, Pa.—July 6-7-8
4. Northeastern; Poughkeepsie, N. Y.—July 14-15
5. Rocky Mountain; Denver, Colo.—July 21-22
6. Far Southwestern; Los Alamos, N. M.—Aug. 3-4-5
7. Midwestern; St. Louis, Mo.—Aug. 10-11-12
8. Northwestern; Boise, Idaho—Aug. 11-12
9. North Pacific; Raymond, Wash.—Aug. 17-18-19
10. Southeastern, Jacksonville, Fla.—Aug. 17-18-19
11. North Central; Brighton, Mich.—Aug. 18-19


1951
Pistol Championship Sites

Under present plans, National Championships will be held in California this year just before the NRA Convention in early October. Complete information on nationals will be published in the March RIFLEMAN.

TOURNAMENT NEWS

At the annual meeting—held at San Francisco early in October, the Executive Committee voted to continue to mail the NRA TOURNAMENT NEWS free to all those members who competed in 1950 registered tournaments or leagues. Those members who haven't competed in registered tournament or league matches during 1950 may subscribe to the NRA TOURNAMENT NEWS at the rate of $1.00 per calendar year.

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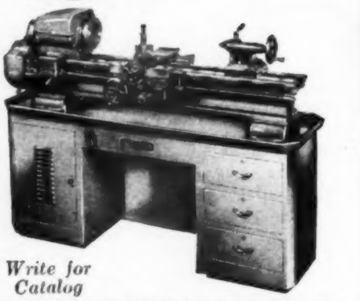

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COMING EVENTS

STATE CHAMPIONSHIP TOURNAMENTS AND OTHER REGISTERED TOURNAMENTS

FEBRUARY

24-25 OHIO—Ohio State Gallery Individual Rifle Championship Match at Columbus, Ohio. Mr. John R. Lang, 3498 Meadow Avenue, Cincinnati, Ohio.

MARCH

3-4 NEVADA—Nevada State Smallbore Championship at Boulder City, Nevada. Mr. Walter A. Jonasen, 417 Birch Street, Boulder City, Nevada.

11 IDAHO—Idaho State Gallery Pistol Championship at Twin Falls, Idaho. Mr. Thomas M. Hill, Hansen, Idaho.

17-18 VIRGINIA—Virginia State Gallery Championship at Norfolk, Virginia. Mabel L. Grissom, P. O. Box 626, Portsmouth, Virginia.

17-18 IDAHO—Idaho State Gallery Rifle Championship at Twin Falls, Idaho. Mr. Thomas M. Hill, Hansen, Idaho.

18 MINNESOTA—State Gallery Pistol Tournament at Minneapolis, Minnesota. Mr. Robert Kangas, 4317 13th Avenue, South, Minneapolis, Minnesota.

24-25 WYOMING—Wyoming State and Central Wyoming Gallery Match at Douglas, Wyoming. Mr. James Read, Douglas, Wyoming.

March 31-April 1 WASHINGTON—Washington State Gallery Rifle Championship at Seattle, Washington. Mr. C. M. Styer, 3447 41st Avenue, S. W., Seattle 6, Washington. (Adv.)

March 31-April 1 NEW YORK—4th Annual New State Indoor Pistol Tournament at Endicott, New York. Mr. C. Arthur Plummer, 408 Hazel Avenue, Union, New York.

30 April 1 NEW JERSEY—Garden State Rifle League Shoot at Union City, New Jersey. Mr. Charles Grollimund, 312 9th Avenue, Paterson, New Jersey.

31 April 1 MINNESOTA—State Gallery Rifle Championship at Minneapolis, Minnesota. Phyllis J. Gustafson, 184 Arthur Avenue, S. E., Minneapolis, Minn.

APRIL

1 NEBRASKA—Nebraska State Gallery Tournament at Grand Island, Nebraska. Mr. H. H. Buis, 1312 N. 35th Street, Omaha, Nebraska. (Adv.)

8 OREGON — Oregon Annual Gallery State Championship at Portland, Oregon. Mr. Russell S. Cornelius, 8322 N. E. Glisan Street, Portland 16, Oregon.

13-14-15 KANSAS—State of Kansas Gallery Rifle Tournament at Manhattan, Kansas. Mr. Jess E. Mosteller, 1216 Thurston Street, Manhattan, Kansas.

14-15 MONTANA—Montana State Gallery Pistol Championship at Helena, Montana. Dr. Robert E. Englert, 1405 4th Avenue North, Great Falls, Montana. (Adv.)

20-21 VIRGINIA—2nd Annual Virginia State Smallbore Gallery Championship at Newport News, Virginia. Mr. J. W. Courtney, Jr., 644 Briarfield Rd., Newport News, Virginia.

21-22 OHIO—Ohio State Gallery Team Matches at Columbus, Ohio. Mr. John R. Lang, 3498 Meadow Avenue, Cincinnati, Ohio.

27-28-29 PENNSYLVANIA—7th Annual State Gallery Pistol Tournament at Wilkinsburg, Pennsylvania. Mr. W. H. Riethmiller, 750 Jefferson Drive, Pittsburgh 29, Pa.

28-29 MONTANA—Montana State Gallery Rifle Championship at Big Timber, Montana. Mr. E. S. Shoemaker, 2010 8th Avenue North, Great Falls, Montana. (Adv.)

STOLEN GUNS

Belgian Browning 12 gauge semi-automatic #771703. John T. Manning, 1622 21st St., NW, Washington, D. C.

S&W K-22 .22 cal. #17592; Winchester .22 cal. Model 75 #59754. E. W. Lozier, Moran, Wyo.

Manhattan .36 cal. 1864, #66916. James A. Knowles, Jr., 715 Lennox Street, Baltimore 17, Md.

Winchester Model 12, 20 gauge Repeater, #1316638; Remington "Wingmaster" Model 870DL, 12 gauge Repeater, #30512. Floyd Bowyer, 4509 Genesee Avenue, Dayton 6, O.

Winchester Model 70, 270 cal., #101002; Mossberg Spotting Scope. John L. Buck, Jr., Locust St., Rouseville, Pa.

S&W 38/44 #S 73994. Kelly Shryoc, 3554 South Drive, Fort Worth 9, Tex.

Colt Woodsmen, .22 cal., #64675. Brit Marrs, Eagle Nest, N. M.

Winchesters: Model 94, cal. 30-30, #1,625,833; Model 07, cal. 351, #51,157. W. H. Depperman, 247 Park Avenue, New York 17, N. Y.

Winchester Model 52s: #49046B, #46187B, and #52049B. J. M. Julian, Cleveland High School, 4352 Louisiana Ave., St. Louis 11, Mo.

Dope Bag

answers by THE RIFLEMAN'S PANEL OF EXPERTS

Julian S. Hatcher • Al Barr • Elmer Keith • Phil Sharpe

NEW LOVERIN DESIGN BULLETS

Lyman Gun Sight Corporation, Middlefield, Connecticut, is now featuring a completely new line of bullets designed by the well-known H. Guy Loverin. The bullets are all gas checks of the typical Loverin design with many lubricating grooves.

The complete set consists of ten different bullets. In .25 caliber there is a 75 grain, No. 257463, and a 91 grain, No. 257464. In 6 mm. caliber there is the 145-grain 266469. In .280 caliber there is actually one bullet design but in two different weights: No. 280468 short weighs 110 grains, and 280468 long weighs 126 grains. In .30 caliber No. 311465 weighs 125 grains, No. 311466 weighs 154 grains, and No. 311467 weighs 182 grains. In 8 mm. caliber there is No. 323470 weighing 166 grains, and No. 323471 weighing 217 grains. The shorter bullets have a minimum of three lubricating grooves. The heavier bullets such as the 182-grain .30 caliber and the 217-grain 8 mm. have from five to seven grooves.

These bullets will be featured in a completely revised edition of the Ideal Handbook which is to be published in the near future. Cast and sized ready for use, the new bullets will be available through Paul G. Mansfield, New Boston, N. H., who took over H. Guy Loverin's bullet-making business some years ago.

To complete the line of bullets of Loverin design there is a .22 caliber bullet which Lyman has featured for many years. Called the Ideal Loverin No. 225438, it is about the best for accuracy in .22 caliber rifles.

We have found the Loverin design bullets as accurate as any lead alloy gas-check bullets we have used.—Al Barr.

FEDERAL FIREARMS ACT

I would appreciate information about the federal regulations regarding length of rifle barrels, shotgun barrels and the so-called Game Getter.—Curtis F. Cooper, Stockholm, Maine.

Answer by General Hatcher: Under the Federal Firearms Act, Public Act 785, 75th Congress, and the National Firearms Act, Public Act No. 474, 73rd Congress, certain 'firearms' must be registered with the Collector of Internal Revenue and are subject to a tax under any transfer of ownership to another person. Under the terms of the latter of these Acts, the term 'firearms' means "a shotgun or rifle having a barrel of less than 18 inches in length, or any other weapon, except a pistol or revolver from which a shot is discharged by an explosive, if such weapon is capable of being concealed on the person, or a machine gun, and includes a muffler or silencer for any firearm whether or not such a firearm is included within the foregoing definition; but does not include any rifle which is within the foregoing provision solely by reason of the length of its barrel if the caliber of such rifle is .22 or smaller and if its barrel is 16 inches or more in length."

Under the terms of the above definition, which is quoted word for word from the Act, a revolver or pistol with an attachable shoulder stock comes under the definition of 'firearm', because when the stock is attached it becomes a "rifle with a barrel of less than 18 inches in length."

As stated above, all such weapons must be registered with the Collector of Internal Revenue. Moreover, if they are transferred in any manner, whether by sale, gift, or otherwise, they are subject to a tax of $200 for each transfer, except the transfer tax on any gun with two attached barrels 12 inches or more in length from which only a single discharge can be made from either barrel without manual reloading, such as the Marble Game Getter, is at the rate of $1 instead of $200.

Anyone in doubt as to the provisions of these Acts should make inquiry to the Collector of Internal Revenue of the district in which he lives.

The Federal Firearms Act is of particular interest to many owners of the 6.5 mm. Mannlicher-Schoenauer carbine, which usually has a barrel slightly less than 18 inches long and, therefore, comes under provisions of the Act. We are in receipt of correspondence from Johnson Automatics Arms, Inc., of Providence, Rhode Island, regarding a case in which an owner of such a gun requested advice as to whether or not the addition of a Johnson muzzle brake would be considered an increase in barrel length. The owner of this gun was advised to take the matter up with the Internal Revenue service, which he did, and received the following reply.

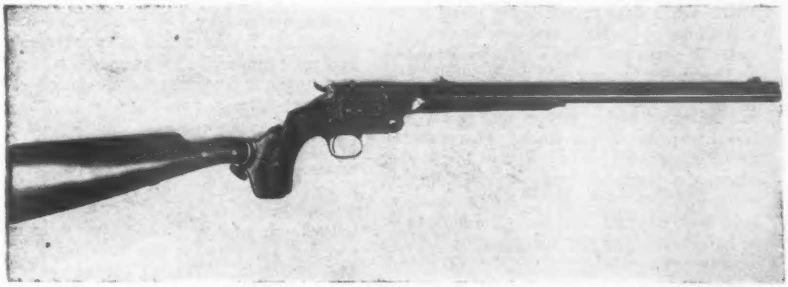
"The latest ruling which we have in this office relative to lengthening of a firearm by the attachment of a muzzle brake was on January 6, 1948, and for your information is as follows:

"The screwing on and cross pinning of a muzzle brake or similar barrel extension is not considered sufficient, and this method of lengthening a barrel would be disapproved. However, the Bureau has approved the method whereby a muzzle brake or barrel band is sweated on the muzzle or front of the barrel. A gun having a barrel lengthened to more than 18 inches by this method will not be considered a firearm; and, therefore, registration will not be required."

It is our understanding, based on the above ruling, that an extension on a barrel such as a muzzle brake or a flash hider which makes the total length over 18 inches will be sufficient to eliminate the need for registration and taxation, provided that the attachment is permanently fastened to the barrel by the use of silver solder or its equivalent, or by welding. It is our understanding that the use of ordinary soft solder is not sufficient.

S&W REVOLVING RIFLE

I have a chance to acquire a novel gun. It is a gun manufactured by Smith & Wesson—.32 caliber, 6-shot revolving cylinder. It is built as a revolver, single-action, barrel is 18 inches long, has a raised rib full length with a blade front sight and a folding rear sight with 2 V notches, one higher than the other. The cylinder is 1½ inches long. It has a clamp-on detachable stock. No. 841 is stamped on the butt of the pistol grip. —W. W. Smith, Newaygo, Michigan.



A collector's piece, the Smith & Wesson revolving rifle in .32-44 caliber has a detachable stock which, when removed, gives a revolver. Illustration is from "Smith & Wesson Handguns" by McHenry and Roper (Standard Publications Inc.), courtesy of Herman P. Dean

Answer by Al Barr: The S&W gun which you have is known as the Smith & Wesson revolving rifle, caliber .32 center fire.

From what I can gather, this revolving rifle used the so-called .32-44, which is obsolete, and I doubt that you could do more than obtain even sample cartridges for it at the present time. The bullet was wholly encased in the shell and, according to references, fewer than 1,000 of this type revolver were manufactured between 1880 and 1885. This revolving rifle would be strictly a collector's item, value depending on how badly you want it.

BARREL AND CYLINDER CLEARANCE IN REVOLVERS

What is the maximum clearance between the barrel and cylinder in a revolver that can be allowed for minimum loss of velocity? What clearance do Colt and Smith & Wesson consider satisfactory? My prewar Smith & Wesson is a tight fit at this point on an .003 gauge. I have a special postwar K-.22 Masterpiece which will accept .006 gauge between barrel and cylinder. Most of the K-.22 revolvers I have examined have that much clearance or more. Is this satisfactory?—John F. Shaw, Sanford, Texas.

Answer by Phil Sharpe: The clearance between barrel and cylinder serves but one purpose—to permit the cylinder to rotate without binding. Experiments by the arms makers many years ago showed that in many guns .002 was insufficient. A combination of powder and primer fouling built up in the space, particularly in the .22 rimfire, and caused binding—if not sticking—and slowed up the rapid-fire shooter.

As to velocity, gas, being a fluid, tends to continue on a straight line unless disturbed, and the loss in this space is so little that it does not seem to alter velocity beyond the normal variations always found. General Hatcher in *Textbook of Pistols & Revolvers* says:

"In the revolver, of course, some gas escapes at the joint between the cylinder and the barrel; but tests have shown that generally the amount is too small to have any noticeable effect on the velocity, being usually not over 2 or 3 percent."

Excessive clearance can cause some side spit. It is doubtful if this, either, would greatly effect velocity, but it can be uncomfortable to the man beside you, particularly on a crowded indoor range.

It must be twenty years ago that I conducted an interesting experiment. A friend had an old Colt .22 which was really 'shot'. It had a worn cylinder stop bolt and worn notches. The crane wobbled all over the place. Clearance between barrel and cylinder was, as I recall it, between .012 and .014 inch. On a dark indoor firing point it was something to behold, with a terrible side spit. I suspected that this was primarily due to the cylinder being out of line.

Among my junk, I had a straight steel rod about 10 inches long which was a snug bore fit—just rode the lands. This was used an an 'alignment gauge'. It was found that when the cylinder was properly aligned, slight pressure was required on the crane to hold it in position, and the cylinder had to be hand rotated to the full extent of the bolt locking in the notches.

The loaded gun was cocked, the crane taped shut with black paper tape which photographers call 'masking tape', and the cylinder was held in position also with tape. Five shots, fired in the dark, showed elimination of most of the side spit and flash. In fact, it compared favorably with my own then-new K-.22 despite the excessive clearance. The bullet, striking the side of the chamber in the barrel breech, apparently was upsetting and creating excessive back pressure.

There is one other thing about this clearance—it varies somewhat as to caliber. When Doug Wesson and I were developing the .357 Magnum, it proved to be a big headache. Certain experimental guns we built would foul so badly that after five shots it was necessary to hand assist the rotation of the cylinder in cocking. This was licked through a normal clearance plus minor alteration of the front end of the cylinder bushing.

In my opinion, a given gun tested with match ammunition for velocity over a 100-shot string with clearance of .002, and then increased .001 for a repetition of the firing up to .006, would show about as near identical mean velocities as you could achieve. Even up to .010 I doubt that you would lose more than 25 feet per second.

BOOKS FOR NOVICE GUNSMITH

I have performed elementary gunsmith work on my guns, and am interested in purchasing a book on gunsmithing that will give accurate information on converting military weapons, etc. I would like one that notes the necessary tools and their function, and that would describe work from rebarreling to headspacing and bolt alterations. Would you suggest a book that contains all the above operations?—John M. Roe, Charleston, S. C.

Answer by Al Barr: You will probably need two or three gunsmithing books to get all the suggestions you want. The best combination that I know of is *Modern Gunsmithing* by Clyde Baker, published by T. G. Samworth, Georgetown, S. C., at $4.50, and an up-to-date book along the same subjects recently published by The Sportsman's Press, Kashington 6, D. C., entitled *Gunsmithing Simplified* by MacFarland.

For gunsmithing tools and accessories get the catalog of Brownell Industries, Montezuma, Iowa. It lists parts for most guns and has a lot of assembly data in it. You will find a lot of assembly data for various guns in the book by MacFarland.

AMMO FOR JAP 6.5

I have a Japanese 6.5 rifle. Since the caliber is of little use to me, I have been thinking of having it rechambered to an American cartridge. The decision rests between the .257 Roberts and the .250 Savage. Which of these would make a conversion easier and be a finer cartridge for my purposes? I plan to use it mainly for deer and once in a while for varmints. Is it necessary to use a 6.5 bullet in reloading?—Rick Miller, Atlanta, Ga.

Answer by Elmer Keith: The bore of your Jap is .262 inch, too large for either the .250 Savage or the .257 Roberts. You can have it rechambered for the Roberts or 7-mm. case necked to 6.5 and reload with 6.5 bullets, which usually go about .263 inch, or you can purchase 6.5 Jap loads from J. W. McPhillips, San Bruno, Calif. or other custom loaders who advertise in the Rifleman.

SHOTGUNS FOR HIGH-VELOCITY LOADS

For how many years have shotguns been manufactured with barrels safe for modern regular and high-velocity loads?—Gordon Kagley, St. Louis, Missouri.

Answer by Phil Sharpe: The first of the high-velocity shot shells was the Western Super-X, which came out about 1920 loaded with a special German powder called Wolf & Co.'s Walsrode Perfect No. 12. Shortly thereafter, DuPont developed their Oval powder for this ammunition. When it first came out, Super loadings were inclined to be dangerous in some guns, and in 1920, using some of the new stuff, I blew up a then-new pump gun. Shotguns made in this country since 1921 should be safe with these high-velocity loads if in good condition.

LEFT-HAND CONVERSIONS

I am a left-handed shooter and am interested in getting my Mauser action .270 rifle changed over to left-hand operation if it is safe and reliable.

Will you give me the names of reliable firms who could be depended upon to give me a safe change-over.—G. E. Robinson, Austin, Texas.

Answer by Al Barr: The Naval Company, Doylestown, Pennsylvania, has been converting bolt actions for the left-hand shooter for quite a long time and has advertised regularly in the Rifleman. I have seen and used a left-hand conversion job, which we illustrated not so very long ago, as turned out by Roy Gradle, 205 W. Islay St., Santa Barbara, California. Gradle does the job without removing any metal in the least to weaken either the receiver or bolt.

MANNLICHER SPORTERS

Will you please give me some dope on the various Mannlichers, in calibers 7, 8, and 9 mm., which have the Mauser type of staggered magazine hinged to the floor-plate. Mine is not a Steyr. It was made by C. G. Haenal of Suhl, Germany, and is a beautiful example of the gunmakers art. The caliber is 9x56 mm. It has a 24-inch barrel, is full-ribbed, with folding leaf rear sight and a double bead front, and has a 'spoon-handle' bolt.

My other 9-mm. Mannlicher has no maker's name stamped on barrel or receiver, but it has a bolt almost exactly like the Steyr. It has a 24-inch barrel, with regular steps, and the same sights and the same type of magazine as the Haenel.

So many of our American-made arms, wonderfully accurate as they are, are heavy and clumsy to carry in the woods. After carrying one of these lighter Mannlichers for five hours, and getting two shots at game, I begin to see the Austrian's point in having a weapon which you carry a lot but fire only once or twice. And, believe me, that 9-mm. slug will anchor any Michigan white-tail, whether he be 25, 50 or 150 yards away. — R. J. Emerson, Grand Rapids, Mich.

Answer by Elmer Keith: You have a couple of the many German conversions of the old Model 88 Mauser, so often called the Mannlicher. Haenel was one of the many who converted these, just as the Schilling outfit did.

The 8x56 is the shorter Austrian load. These rifles should not be used with the more potent loads made for use in later Mausers with solid bolt. Your rifles, the detachable bolt head type, will not stand heavy pressure. The lugs are farther to the rear as on the Mannlicher—Schoenauers. Many of these were converted to the staggered magazine but retain the old bolt system. It is one of the most common European sporters. In the 9 mm., it is a wonderful killer. The heavy 280-grain bullet at moderate velocity is a much better load for our larger game than anything possible from the .30-'06. These rifles are supposed to be safe to about 48,000 pounds pressure but most factories have held pressures down to around 35,000 pounds for use in them for many years.

COLT COMMANDER IN MATCHES

Can the new lightweight .45 Colt Commander be used in all matches for the Government model. Can one use carved pearl grips?—VERE R. EVANS, Brainerd, Minnesota.

Answer by Elmer Keith: Yes, you can use that .45 lightweight Colt Commander in all matches which are listed as "For .45 caliber semiautomatic pistol", and in these matches you can also use carved pearl grips if you so desire.

This new pistol cannot, however, be used in the occasional matches that are sometimes held which are "For Service pistol". At the present time there are not many of these matches. Most of those you will see on programs are "For .45 caliber semiautomatic pistol" and in these your gun is permitted.

.300 SAVAGE LOAD

We get many requests for loading data on the .300 Savage with the various bullets available. Probably the best one now available is the new and accurate 125-grain Sierra spitzer bullet and the load used is 42 grains No. 3031 powder. Doc Powell of Burbank, California, says the load groups in about 1½ inches regularly at 100 yards using a model 99 Savage rifle with a Kr Weaver scope attached.—AL BARR.

SWIFT LOADS & BARREL LIFE

How many grains of 4895, lot No. 27277, would you recommend for my .220 Swift with a 50-grain jacketed bullet to obtain a velocity of about 3,200 to 3,400 and still maintain accuracy?

The object in reducing the load is to prolong the life of my barrel and still have speed and accuracy. Can this be done?

In your opinion, approximately how many rounds of factory ammunition would have to be fired in a .220 Swift before the gun would lose reasonable accuracy?—DR. G. A. VANNETTE, Hart, Michigan.

Answer by Phil Sharpe: In my Swift, with my own loads with 50-grain bullets of my make (RCBS dies), I have chronographed 40 grains of 4895, lot 27277, to a 60-foot instrumental velocity of 3,984 feet per second. With 55-grain Sierra bullets, 39 grains was top and gave an instrumental of 3,792 f.s. Thirty-seven grains gave 3,573, but didn't shoot as well as the heavier charge. I have found that the Swift is critical and performs best only at full charge level.

I don't know how long a barrel will last. I have had the boys tell me that they are good for 800 rounds, 1,200 rounds and 1,500 rounds. My old gun was built before the Swift came on the market. Standard Winchester heavy barrel blank, 30 inches long, on a Springfield action. The log shows that it has taken over 2,800 rounds, mostly handloads, all powders, and all full charge. It will still do ¾ inch groups when I do my part.

COPPER BANDED BULLETS

One of the main ambitions of many handloaders is to obtain practical accuracy at quite high velocity with cast bullets without the bullets stripping in the bore. One method used by some shooters to accomplish this is to make bullets of a hard alloy, such as type metal, and paint the bullets with a diluted solution of acetate like Duco

ENDORSED VALUES AT LOWEST PRICES

FACTS ABOUT BLUEING

There are no secrets to the art of blueing guns. It is an age-old process and your success in turning out the perfect job will be in direct proportion to your setup, your ability to follow simple instructions and your will to do the job right.

HERTER'S, Inc., are offering you blueing salts on a down-to-earth level and at the lowest prices available in America today. In your cost for these products, we include no catalog charges, no engraved certificates. Nor do we limit our sales to any so-called exclusive groups.

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with can of cyanide eggs, 45 lbs., or enough to make up a five to nine gallon blue bath. Shipped express collect $10.70.
90 lbs. or more, per lb.... 22¢
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CYANIDE EGGS, shipped express collect, per doz.... 46¢

VITE CLEANER—For use in cleaning tanks. Noncaustic, it is the finest known material for cleaning guns before blueing. One pound makes over 20 gallons of cleaning solution. Per 10 pounds $1.00

NUTROIL—Mix Nutroil in your final hot rinse after blueing. Its emulsifying action immediately stops the action of blueing chemicals, thereby protecting softer metals. Per gallon $1.75

EUROPEAN-TYPE BLUE REMOVER—Removes old blue, including parkerizing, instantly and greatly speeds up the cleaning operation. Removes rust of all kinds. Unconditionally guaranteed superior to any other blue remover on the market today. Per pint .... 70¢

PORE FILLER OIL—This oil provides the perfect finishing touch to any blueing job. It penetrates the very pores of the metal, displacing water in any form. It neutralizes salt water and fingerprints, is ideal for general use, as well as for storage purposes. Per gallon $2.50

SAFETY APRON FOR BLUEING—Herter's Safety Apron is designed particularly for blueing. Made of Vynl, this apron will not crack with age, will not harden under any circumstances, is acid resistant and can be easily cleaned by rinsing in water. 36 inches wide and 48 inches long, it gives perfect head to ankle protection. Each $1.75.

HERTER'S BLUEING THERMOMETER—This thermometer is designed particularly for blueing purposes, will register temperatures ranging from 50 to 400 degrees. Rust and leak-proof, the 18/8 gauge stainless steel will not corrode when used with blueing compounds. We guarantee the accuracy of this scale to within one degree at all times. For the finest blueing, these thermometers are a necessity. Each $2.65

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Herter's famous detachable swivels are not new-fangled gadgets. Built of best quality steel, hand polished and blued, they are guaranteed not to twist, turn or work loose. Gen. Hatcher says, "These are attractive well machined articles with a substantial appearance, and they work as well as they look." Supplied with 1 and 1¼ inch slings. Swivel with wood screw for butt $1.00; with machine screw and nut for forearm $1.25; with barrel band (specify size) $2.00.

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NO SLIP BUTT PLATE OPTIONAL
ALL STOCKS POSTPAID

Stocks machine sanded with Bacite buttplate, grip-cap and forearm tip attached. Ivory or black spacer plates installed between stock and fittings optional at no additional cost. Inletting guide pins supplied free of charge.

For steel fittings, add 75¢ to cost of any stock listed; steel fittings installed 75¢; for Streamliner or Schnabel tip, $1.00. Streamliner or Schnabel tip installed add 50¢; for adding white spacer behind Streamliner tip, add 50¢. Add $7.00 for stock completely hand inletted so that rifle will drop into place with no further work.

FANCY WALNUT STOCKS: Custom grade $11.45; Demi Deluxe grade $15.00; Deluxe grade $20.95; Grand Deluxe and Grand Fiddleback grades $35.00. French walnut, Field Grade $8.95; Custom grade $21.00. Laminated Maple and Walnut stocks $29.00. All precision inletted with Bacite fittings attached, spacer plates optional. Write for quotations on stocks in curly maple and myrtlewood. Mannlicher type stocks for Mauser, Springfield, Enfield $11.50.

FITTING AND FINISHING MACHINE INLETTED STOCKS

Here is the only complete manual ever written on the subject of fitting and finishing machine-inletted stocks. William L. Humphrey, outstanding American stocker, is the author, and he has thoroughly covered the subject from an outline of the bare necessities for tools through the step-by-step process of fitting the action and bedding the barrel. Also included are the details of final shaping and finishing with oils or resins. MANUAL SUPPLIED WITHOUT CHARGE WITH EACH GUNSTOCK UPON REQUEST OF CUSTOMER ONLY.

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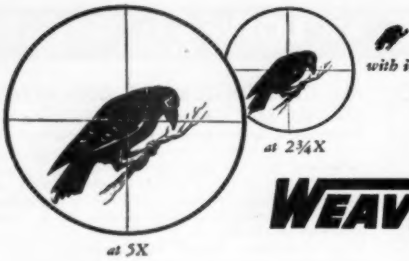

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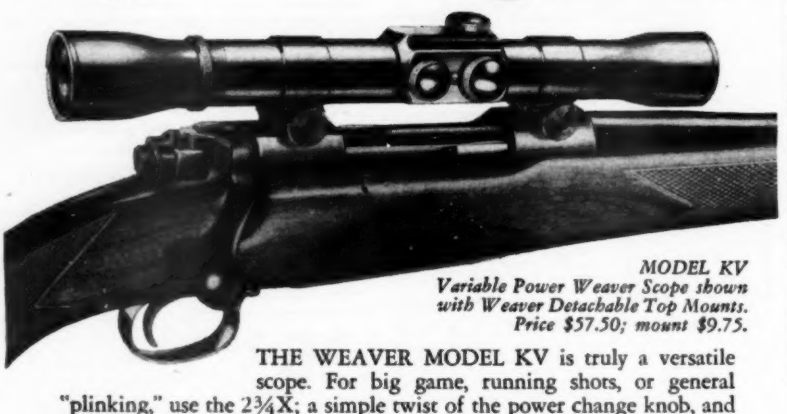

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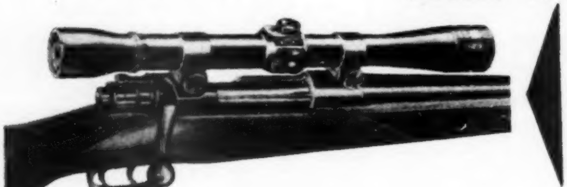

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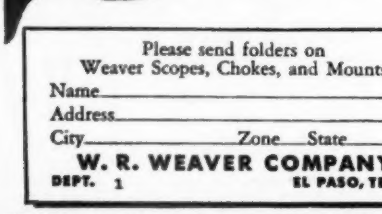

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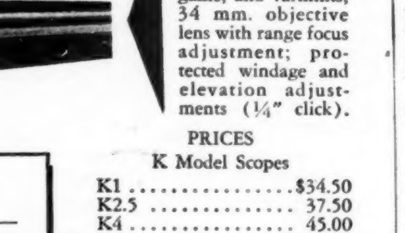

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cement. Another system which has been tried in the past is to wind a strand of copper wire into a coil-like section and fit it into the mold before casting the bullet. This method was featured some years ago by Hensley & Gibbs, 2692 E Street, San Diego, California.

More recently, experiments with copper banded bullets have proved satisfactory. In .30 caliber, for example, a .3125-inch diameter copper tube is cut into short sections that will fit into the bullet mold between the lubricating grooves. By inserting the small copper band near the base of the gas-check bullet, the bullet is then cast, sized, and lubricated. Experiments with these bullets by William Anderson, 14801 Harrison Road, Detroit 23, Michigan, and James H. Barnes, 1721 Orizaba Avenue, Long Beach, California, have come to our attention. Mr. Barnes' bullet has been tested by the Cramer Bullet Mould Company, which is quite interested in the results obtained with it. Apparently very high velocity results, and good accuracy as well, although experiments are still in the initial stage. Mr. Anderson has found that he can get very decent accuracy with a single copper driving band so long as it was placed between the gas check and the nearest lubricating groove of the bullet. Mr. Anderson casts his bullets of a soldering alloy normally used in auto body shops.

Similar tests have been conducted by Mr. Henninger of the Cramer Bullet Mould Company using two driving bands. One of the bullets experimented with by the Cramer Bullet Mould Company is the Cramer No. 50 weighing around 100 to 110 grains, depending on the alloy, and using 45 grains of 4895 powder, lot 2182, which is a rather potent load. Mr. Anderson reports he obtains good accuracy with 33 grains of 4895.—Al Barr.

TAKING APART SMLE BOLT

Please explain to me how the cocking piece, mainspring and firing pin are removed from the bolt body on the Short Magazine Lee Enfield Mark III. Does the steel piece set in the stock, to rear of the rear sight, serve any other purpose than to protect the sight? And what is the purpose of the disc set in the right side of the butt stock? Could you also tell me what is the breech pressure developed at the time of discharge? —Terence Keeley, Brooklyn, N. Y.

Answer by Phil Sharpe: It has been probably 15 years since I disassembled a bolt on a Short Model Lee Enfield. I had completely forgotten, so, to answer your letter, I dug out my collection specimen and went to work. I don't wonder you were confused. So was I.

Here is the dope: You are undoubtedly familiar with the method of removing the bolt from the receiver, and thus I won't go into that. You have also found that the bolt head unscrews from the bolt body. Put it back. Rotate the cocking piece assembly to full release — you will find the notch without trouble—let it as far forward as it will go. Remove the little screw in the rear face of the cocking piece below the end of the striker. Now, and not until now, unscrew the bolt head. A lug on the striker or firing pin will engage a notch in the bolt head, unscrewing it from the cocking piece. When free the bolt head comes out, and things can be poured out.

This action is confusing, yet very simple, once you catch on. I suggest that with this letter beside you, you try it—once you have done it you will have no further trouble.

SCOOP CUP CHARGE FOR .38 SPECIAL

I recently purchased an Officer's Model Target .38 Special and I want to do a little kitchen table reloading with a Lyman 310 tool. Would you recommend a load for me so that I could make a cup and scoop the powder—some powder that would not be too critical on a little variation.

I would like to get a mid-range load using a 146-grain bullet. What weight bullet and powder charge would you advise? Years ago I used to reload to a 157-grain bullet, with a cup throwing around 3.8 grains of some powder but it's too far back for me to remember.—Virgil Garnett, New Castle, Indiana.

Answer by Elmer Ketih: I would advise you to take an empty case, solder a handle on it, and then file it down until it holds exactly three grains of Bullseye each time you dip it into the powder and scrape it off level full. That will give you a half-grain leeway and you can, if careful, safely load three grains of Bullseye with that 146-grain bullet, which should prove about ideal for a medium target load. You could also do the same thing with DuPont Pistol Powder No. 5 and use 4 grains charge. However, for medium or light loads, it's hard to beat Bullseye.

M1886 TO .348 CALIBER

I have a Winchester Model 1886 rifle in .33 caliber, serial No. 146,205, that I wish to rebarrel with a .348 Winchester barrel. I noticed in an article in the Rifleman by Harold F. MacFarland (May 1950) that the accepted figures on action strength for an 1886 action with a serial number over 126,000 is 45,000 pounds and that the strength of Model 71 Winchester is also 45,000 pounds.

The Model 1886 Winchester is in perfect condition. Would you advise the change from a safety standpoint?—C. R. Weston, Buellton, California.

Answer by Al Barr: I certainly would not advise rebarreling and converting that Model 1886 rifle to .348 caliber unless such a conversion was approved by the Service Department of Winchester Repeating Arms Co., New Haven, Connecticut. The Model 71 Winchester for the very powerful .348 cartridge was made of better steel than some of the older .33 Winchesters so as to safely handle the higher pressure developed by the new, modern cartridge. Chances are the conversion work would be too costly to be worth considering anyway.

HOLEK SEMIAUTOMATIC RIFLE

I have a 7-mm. semiautomatic rifle which my son bought in Prague, Czechoslovakia, in the fall of 1948. It is called the Original Holek, and also has the name Lovena engraved on top of the barrel. It is 43 inches over-all, with a 20-inch barrel, and has a clip that holds three cartridges, also a cheek rest on the stock. It is the lightest weight semiautomatic that I have seen in the high-power class, as it weighs only 7 pounds. I'd appreciate anything you can tell me about this gun. — A. K. McCrory, Ardmore, Oklahoma.

Answer by General Hatcher: The Holek

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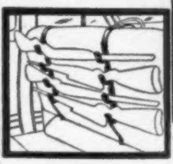

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rifle is made by the famous rifle factory at Brno, Czechoslovakia, known as Ceskoslovenska Zbrojovka, whose trademark is the letter "Z" enclosed in a circle. The pistol factory of the same name, Ceskoslovenska Zbrojovka-Narodi-Podnik (People's Factory) of Strakonice is known as CZ, and the trade-mark is a circle enclosing these two letters.

Mr. William Piznak of New York City, tells us that the Holek rifle was originated by Emanuel Holek, youngest of three brothers. He designed a semiautomatic rifle which was tested by the Ordnance Department at Aberdeen Proving Ground in 1929. It was chambered for the Pedersen .276 cartridge, and is shown on page 164 of *Hatcher's Notebook*. Emanuel Holek personally demonstrated the rifle at the test. This gun, the ZB 29, was made in very limited quantities for two small eastern European countries. It was very susceptible to dirt, etc., and therefore, failed to achieve quantity production.

The Holek is a further development of that ZB 29, and all that we have seen were for the 8-mm. German army cartridge. One is shown on page 170 of *Hatcher's Notebook* and others on pages 172 and 173. We wrote to Mr. Piznak about your gun and he states:

"Mr. McCrory's gun is most unusual if in 7-mm. caliber. It may have been rebarreled, hence the name Lovena, which is the name of a large sporting-goods store in Prague. I have fired two of the 8-mm. Holek rifles. They are too susceptible to variation in ammunition. Those I tested jammed often when British and U. S. sporting ammunition was used. Malfunctions also resulted when the German Ss (sharp-pointed heavy bullet) loads were used. The Czech S (spitzer pointed) loads worked O. K., indicating gas pressure difficulties, as the German Ss was a higher pressure load. I suggest Mr. McCrory set his gas opening as wide as possible and try four or five different loads then stick to the one that functions best in his gun."

Further information on Holek, from Mr. Piznak, may be of interest. Emanuel Holek left Zbrojovka about 1937 and went into business for himself. He organized a small shop, specializing in sporting rifles, also in shotguns, with which he had had experience while he was with Strakonice, manufacturers of shotguns as well as pistols.

His older brother, Vaclav Holek, chief designer of CZ at Brno, is famous as the developer of the Bren gun. His first effort was called the Praga light machine gun. The ZB firm of Brno bought that patent and began production of the light machine gun known as ZB 26. The later development is the British Bren (from Brno-Enfield) known as ZB 33.

STANDARD & HIGH VELOCITY LOADS IN REVOLVERS

How come the Smith & Wesson people, in their brochure, don't recommend the use of anything hotter'n standard velocity loads in their K series; I see they condone them only in the .38-44 and Magnum? Colt, on the other hand, claims you can shoot the high-speed .38's, even the .38-44 load, in their little Police Positive and the Detective Special. Seems to me that if that 21 oz. Colt can sling 'em at 1,175 feet per second (the book says), the heavier Masterpiece ought to handle them safely too.

I notice in your revolver velocity-barrel length article in the last RIFLEMAN, you chronograph the alleged 1,175 f.s. load at 920 f.s. in the 6-inch barrel. Western must be pulling our leg a little. Anyhow, that's a hot little factory load, and I'd like to use 'em in the Masterpiece if it won't beat the thing up on me.—CLAYTON L. WORST, JR., Phoenix, Arizona.

Answer by Phil Sharpe: When it comes to strength, I can assure you that any model Colt or Smith & Wesson is adequate for the standard American factory loads, either standard or high velocity. This does not apply to the high-velocity loads in the rifle calibers of .32-20, .38-40 and .44-40.

In any of the light frame revolvers or either make, *continued* use of the fast loads creates damage in the form of 'shooting loose'. It can be done in less than 1,000 rounds.

You have a fine target revolver. Why abuse it? I see no advantage to high-speed loadings for target work, but for limited use in other fields I would not hesitate to put speed loads through my Masterpiece.

.257 LOADS

Would you be so kind as to recommend a load for the .257 using the Ackley 90-grain controlled expansion bullet, No. 3031 powder, and the 8½ primer?

I wish to make up some loads that will give me approximately 3,400 feet per second muzzle velocity with pressure not greater than 50,000 pounds, preferably 48,000 pounds. I have in mind 44 grains of 3031 powder but I have no way of checking the pressures, which I believe will run between 50,000 and 53,000 pounds.—MERRILL C. WELLS, Schenectady, N. Y.

Answer by Al Barr: I have used the Ackley controlled expansion bullets in different calibers and, because of the solid base, I found that sometimes I had to reduce the load a grain or two under the maximum used with other conventional bullets of equivalent weight. For example, with an 87-grain Speer bullet and 43 grains of 4064, which is slower burning than No. 3031, I got 3,390 feet per second velocity at 50,300 pounds pressure. Judging by that, I am reasonably sure that 44 grains of No. 3031 would be an excessive load with the 90-grain Ackley bullet. An equivalent load of No. 3031 would be 41 grains, and that would probably be maximum. I would suggest that you start with a load of about 40 grains of 3031 and work up.

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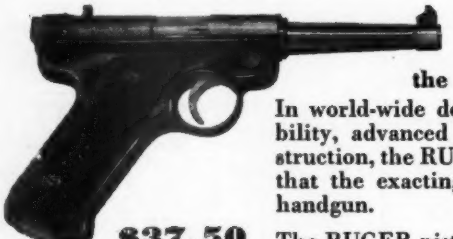

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9 MM. LUGER LOAD

I am interested in reloading 9 mm. pistol ammo for both the Luger and the P-38. How will the Ideal standard cast bullet No. 356402 work in the P-38? Are there any other cast bullets around for the 9 mm.? What should the bullets be sized to for the Luger and the P-38?—Alex Horozan, New York, N. Y.

Answer by Al Barr: The Ideal bullet No. 356402 is the correct one to use in Luger and P-38 pistols. Of course, there are other designs made for the cartridge by Hensley & Gibbs, 2692 "E" Street, San Diego, California, and the Cramer Bullet Mould Company, 11625 Van Owen St., North Hollywood, California. You will need either a conical bullet or a round-nose bullet if you want the load to feed through the magazine of the autoloading pistol.

The bullet should be sized to .356 or .357 inch diameter for any Luger pistol. A maximum load with the Ideal bullet is 3.4 grains DuPont No. 6 powder, which gives a little over 1,000 feet per second velocity, or 4.8 grains Hercules Bullseye, which gives 1,120 feet per second velocity.

RIGHT HAND TWIST IN FRONTIER COLT

I purchased a new barrel for a .44-40 Frontier model Colt from the Christy Gunworks at Sacramento, California and find that the rifling is to the right. The original Colt barrels turn to the left. With the barrel having right-hand threads, I feel that a barrel with right-hand rifling will cause the barrel to shoot loose, although the Christy Gunworks must know what they are doing in making barrels. Their barrels are nice looking and fit nice.—Lawrence G. Baker, Fairbanks, Alaska.

Answer by Elmer Keith. With a properly and tightly fitted barrel, the direction of the twist of rifling should have no effect and should not loosen the barrel.

Christy Gun Works know well what they are doing and, I believe, guarantee their work so you have no worries on that score.

The U. S. Enfield barrel has a left-hand twist and the Springfield barrel a right-hand twist originally, and they both stay put though both guns have the same direction of receiver threads.

MODEL 1861 RIFLE

I was recently given a rifle marked as follows:

U. S. TRENTON 1864 on lock plate
P (on under side of barrel)
JSD

Also on lock plate is an American Eagle. The bore is .600 approximately and smooth.

Can you tell me briefly if this is rare or common, and what it was intended to be used for.—Walter W. Herrick, Milford, New Jersey.

Answer by Al Barr: The rifle you have was made by a company in Trenton, N. J., about 1864 and was known as the Model 1861 rifle. This was one of the many contract arms used during the Civil War. These old guns are not particularly common, but they have to be in very fine condition before any collector would be interested in them. One caliber was the so-called .69 smooth bore, and that may possibly be what you have. Most of the later .58 calibers, I understand, were rifled.

NEW PRODUCTS

Winchester barrel blanks are coming back. Winchester reports that they can 'sometimes' supply them in limited quantity. At present blanks are available in .22 Hornet caliber with 16-inch twist and .220 Swift in 14-inch twist. From time to time lots go through for the .219 Zipper, 15-inch twist; .257 Roberts, 10-inch twist; .250 Savage, 14-inch twist; .270 Winchester, 10-inch twist; .30-'06, 10-inch twist and 7 mm. with 8¾-inch twist.

All blanks are 30 inches long and have a three-inch cylindrical breech section with a diameter of 1.25 inches, thus permitting finishing to full diameter of a normal receiver. At the 3-inch point they taper uniformly straight, .014 per inch, to a muzzle diameter of .875 inch. All barrels are finish ground, and only the .220 Swift is supplied in stainless steel. Stainless barrels will be furnished in no other caliber. Special twists in any caliber cannot be supplied.

These blanks are available through dealers or direct from the factory. Write Products Service Division, Winchester Repeating Arms Co., New Haven 4, Conn., for prices.

E-Z Pocket Swage for removing crimp from around primer pockets of military cartridge cases is made by J. W. McPhillips, custom handloader of 285 Mastic Avenue, San Bruno, California. The unit consists of four pieces—a machined steel base with rod upright, recessed on the upper end to prevent damage to the flash hole; a tubular steel case supporting body; and the hardened swage unit; and a special hardened key for removal of the swage from the pocket. In use it is simple. The decapped case is dropped over the mandril or upright shaft, the body slid over the case, the swage dropped into the pilot section of the body, and tapped lightly with a hammer. It can be observed through open milled side sections to prevent over-swaging. Instead of prying the swage from the pocket, as is necessary with hand swages, introducing the problem of distortion, the special hardened slotted key is inserted in the milled sides and tapped gently. This cams the swage straight out. For the man who wants to reuse military crimped cases, this is the neatest unit to date. Price is $7.50 postpaid.

Stock-finishing and water-proofing material which can be easily applied directly to a stock after the pores have been filled with a good wood filler is available in a 4-ounce bottle for $2 from N. V. Moor Company, 420 Market Street, San Francisco, California. Tests have proven the water-proofing qualities of this stock-finishing material, which does a very passable job in single application, though a nicer looking, more durable finish can be obtained with several applications. Each application of the finish may be applied after about a thirty minutes wait for the previous one to set, so that a speedy, simple finishing job can be done.

Fusion Paste Alloy is a handy, practical material for soldering and brazing which is being marketed by Brownell Industries, Inc., Montezuma, Iowa. Ready for use, and requiring neither particular skill nor separate fluxes, acids or other materials, fusion paste alloy is applied directly to the clean parts

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which are to be joined together; after application, the parts are held together and heated to finish the job.

A fusion-type alloy is available for any type of welding and soldering that a gunsmith or repairman will need, some having low melting points and others relatively high melting points. Heat range for joining metals together vary from 300 degrees for one type, up to 1200 degrees for a silver braze paste. Brazing jobs such as installing sights, scopes bases, or front sight ramps are greatly simplified by this relatively new soldering technique. A complete general brazing and soldering kit, No. K6, costing $6.00, contains seven of the most popular and practical materials which a gunsmith may need.

Barrel bedding device which supports a rifle barrel in a V-block attachment in the forearm of the stock and is adjustable to vary pressure on the underside of the barrel by means of a coil spring and adjusting screws is made by L. S. Weld, 56 Quentin Road, Rochester, N. Y. When the device is properly fitted, the barrel doesn't touch the wood of the forestock at any point but rests directly on the V-block of the bedding gadget. Constant zero and improved accuracy are claimed with proper adjustment of the device for the individual gun, which can be arrived at only by experiment. After some use of the Weld bedder, we believe it will aid considerably in maintaining a constant zero and it will improve groups frequently since the barrel is not tied to an artificial support. Retail price of the Weld bedder, with instructions for installation, is $6.50.

Loading tool dies are now available from the RCBS Company, the name of which is changed to RCBS Gun & Die Shop, at 1365 Seventh Ave., Oroville, California. Fred T. Huntington, manager, advises that his staff has been augmented by the services of Frank J. Stratinsky, diemaker for 20 years with the Pacific Gun Sight Company, who will produce improved dies for any tool with the standard ⅞ inch x 14 thread. Reamers are available for all standard calibers and a wide variety of wildcats, and special order dies will be made on receipt of sample cases from any rifle. The new RCBS line of products will include sizing dies, expanders, seating dies with or without crimpers, file-type trimmers, and neck-down dies. Sizer, complete with expander, will sell for $8.50, with units, sold separately at $6.00 for the die and $2.50 for the expander. Neck and full-length dies are available. Seating dies and trimming dies are each $5.

Unertl 24 x 63 spotting scope is a beauty, and performs just as well as it looks. It is of the usual prism construction, weighs 2½ pounds, is 16 inches long overall, and is handsomely finished in gray crackle with black bands.

As indicated by the name, the power is 24 and the objective is 63 mm. in diameter. We have been testing this new spotting and observation scope during the past two weeks, and performance is superb. John Unertl is just about the cleverest designer in the scope field today, and this new scope is one of his very best efforts. He tells us he is going to sell this new scope for only $80.00, which is a very reasonable price indeed for such a fine instrument.

GUNSMITH TRADE DOPE

Roy Peterson, son of the late A. W. Peterson, one of America's greatest rifle barrel makers, died on November 21, 1950, at his home in Denver. After the passing of his illustrious father, Roy continued the old business up until the forepart of October 1950 when, because of failing health, mainly a bad heart condition, he disposed of the A. W. Peterson and Son gunsmith shop in Denver to Leighton Baker. Mr. Baker expects to carry on gunsmithing at the old stand of the Petersons.

George Brothers, producers of GB fast-drying linseed oil for finishing gunstocks, have moved and the new address is Box 586, Sparks, Nevada.

Cook's Machine Shop, 909-11 Tuttle St., Des Moines, Iowa, makes a gunsmith's dent remover which is a thoroughly practical, well-made tool with gauges for 20, 16 and 12 bore. It will prove a very useful addition to any gunshop doing shotgun work.

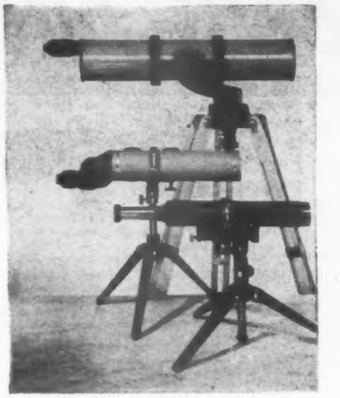
Bolin's Gun Shop, R.F.D. No. 1, South Amboy, New Jersey, has available parts for the .45-70 Springfield rifle and carbine. With the large number of these old arms in use at the present time, this should be welcome news to owners of these arms. Parts are also being supplied for the Sharps, Spencer, Remington rolling-block weapons, Colt single-action Army revolvers, and other old firearms.

Brown & Ball, 1206 B Avenue, La Grande, Oregon, have made some changes in the powder dispenser they make for use with a powder measure. The device now meters charges faster and more accurately than the previous model, speeding up still further the operation of a dispenser which measures a charge within a few individual grains of powder of the final load. The powder dispenser is a valuable aid for the most meticulous handloader, giving him a powder charge which must be weighed only once, to check the weight of the load.

Anderson Gun Shop, Yakima, Washington, makes excellent safeties for the top of the grip or for the right side of the cocking piece for most bolt-action rifles. The right side safety is a small neat one which fits on the receiver tang and does not entail any stock cut. These are thoroughly reliable safeties that block the trigger but do not block the striker. All trigger pulls are carefully checked to be certain they are safe before the safety is fitted. Anderson also fits a cross bolt safety on model '99 Savage rifles.

L. R. Wallack is moving bag and baggage about February 1 to Mayfield, New York, which is a few miles north of Johnstown, N. Y. of bench-rest fame. He was formerly located in Langhorne, Pa.

Ray Riling's Arms Collector Service, 6844 Gorsten Street, Philadelphia 19, Pennsylvania, has issued the 1951 Catalog of new arms books. The catalog (free to customers, and fifty cents to others) is the largest (60 pages) and most ambitious that Riling has issued to date. It lists over 366 titles, selected for collector, shooters or sportsmen, and includes titles as well for armchair outdoorsmen in the nature of "Westerns".



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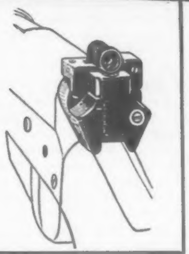

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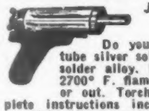

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Equal to Welding for Most Purposes

Do your own repairing. Kit includes one tube silver solder flux and 10 5-in. lengths silver solder alloy. Hottest ALCOHOL TORCH known. 2700° F. flame. Operates in any position, indoors or out. Torch alone $5. Kit alone $1.50. Complete instructions included with torch and kit.

Add 25¢ on each order toward shipping charges.

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Performs all operations of reloading except full length resizing and powder charge. Guaranteed rifle or pistol $14.95

Hollywood Reloading Tool $42.50—Powder Measure	$16.50
Pacific Standard Tool Full Length Resizes	34.65
Pacific Super Tool $42.65—Universal $47.50, $55.00	68.50
Pacific & Universal Dies $12.50—Tru Line Jr. Dies	9.25
Belding & Mull Tool $19.50—Powder Measure	12.50
Ideal #310 Tool $11.50—Tru Line Jr. Tool	22.00
Ideal Powder Measure $10.00—Lubricator & Sizer	12.50
Saeco Measure $14.50—Saeco Melting Furnace	28.50
Smiley Case Trimmer $16.50—Potter Furnace	17.00 up
Ideal or B&M Hand Books 60¢—Ideal Sizing Dies	3.00
Wilson Trimmer $12.00—Neck Reamer $5.50—Shell Holder $1.25—Wilson Sizing Die, full length	6.60
New Redding Powder Scale $11.95—Pacific Scale	9.35
Ideal Bullet Molds $6.00—Ladle 75¢—Lead Pot	1.25
Lub & Size Die $3.00—Lubricant 25¢—Mold Blocks	4.00
Vickerman Bullet Seaters $7.75—Boyce Adaptors	3.40
C-H Precision Loading Dies $12.50—Fit Pacific, Hollywood, Easton and Universal—Chrome Plated	12.50
DuPont powder 4227, 4198, 3031, 4320, 4064, 4350, $2.05 lb. 20 lb. keg $34.00. #6 pistol, 5066, 4759 & shotgun $1.25 lb. 25 lb. keg	53.00
Hercules powder—Bulls Eye $1.75; Unique $2.00; 2400 & Hi Vel #2 can	2.20

Some bullets & primed cases in stock.
State 2nd choice.

Free List—Discount to Dealers

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229-231 E. 3rd
LEWISTOWN, PA.
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Open 8 a.m. to 9 p.m.

GUN BARGAINS

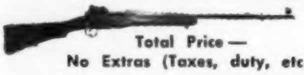
BRITISH ENFIELD .303 SPORTER $49.50 INCLUDING ALL CHARGES

Hi-Powered precision 6 shot bolt action .303 British ENFIELD repeater CONVERTED by expert gunsmiths into a Streamlined SPORT MODEL. Walnut stock. 26" Barrel. Blade foresight and aperture rear sight. Noted for its smooth action and ballistical properties. Makes ideal hunting rifle. Weighs only 8½ lbs. A chance to get a Hi-Powered proof tested SPORTER at a fraction of what they will cost this fall. .303 Enfield Ammunition made by Remington. 215 Grain. Express soft point. Shells permit reloading and using innumerable times.

Other Fine Hunting Rifles

.30-06 Springfield, as issued except stock cut to Sporter, very good	52.50
.30-06 Springfield, same as above, Excellent	59.50

30-06 WINCHESTER REMINGTON BARRELED ACTIONS $39.50



Total Price — No Extras (Taxes, duty, etc.)

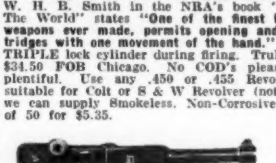
These nationally famous Model P-17 barreled actions are As Issued and their condition described "Very good to Excellent." These actions have been recently blued throughout and Proof tested to assure complete buyer satisfaction. They come ready for immediate use once they have been stocked. Here is your opportunity to make a substantial saving by fitting these wonderful barreled actions to stocks you choose yourself and get a precision, smooth working, dependable gun for 50% or less of normal retail selling price. No special skills required for doing a suitable job of stocking. Tools needed will be found in the average household. If you cannot get a stock locally the Central Pattern Works, Racine, Wis., offers brand new stocks for above actions for only $5.50. Or, you can buy a genuine walnut stock for $6.50 from Herter's, Inc., Waseca, Minn. They also will send you a free, illustrated manual "Fitting and Finishing Machine Inletted Stocks." Our supply of these famous Winchester and Remington Actions is small and to avoid disappointment urge that you take immediate action by sending your order today.

IMMEDIATE DELIVERY

In spite of existing conditions and the press of business we feel that for a reasonable time at least we can assure immediate delivery of all orders received.

.455 WEBLEY $34.50

Made by WEBLEY of England, supplier to the British Government, War Dept., Air Force, Navy and major Police Depts., Excellent condition. Recently proof tested. W. H. B. Smith in the NRA's book "Small Arms Of The World" states "One of the finest heavy duty hand weapons ever made, permits opening and extracting cartridges with one movement of the hand." These revolvers TRIPLE lock cylinder during firing. Truly a fine value at $34.50 FOB Chicago. No COD's please. Ammunition plentiful. Use any .450 or .455 Revolver ammunition suitable for Colt or S & W Revolver (not automatic). Or, we can supply Smokeless, Non-Corrosive 265 Grain Box of 50 for $5.35.



9MM German Auto LUGER $49.50

The world famous Official German Army LUGER. Weighs 31 ounces! Their condition is "Very good to Excellent" These LUGERS have a Muzzle Velocity of 1150 ft. per second! Striking energy is 365 foot pounds! They have fixed sights, and special safety features. Overall length 8¾". 8-cartridge magazine. American and German made ammunition is available everywhere.

WALTHER 9MM P-38 AUTO $47.50

This is the Official World War II German Military Automatic so popular with German Officers. Barrel length 4¾"; overall 8½", weight 34 oz. 8-cartridge magazine. The P-38 is of very unusual design, with a double-action, so that after loading and closing the slide action, it can be fired by simply pulling the trigger! Condition "Very good to Excellent."

Unconditionally Guaranteed

Every gun is sold with the understanding that if you are not completely satisfied in every way return your gun within 5 days for a full unquestioned refund of your money. RIFLE cash orders shipped prepaid. C.O.D.'s include $5.00 deposit. HANDGUNS are all shipped FOB Chicago and C.O.D. orders cannot be accepted. In ordering hand guns you must state in your order you are not a minor, alien, fugitive from justice or been convicted of a crime of violence.

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Ammunition Edged Weapons War Relics
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Contains the Most Unusual Assortment of Guns Ever Presented. Price 50c

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Hudgins Optical Service, 3443 Sheffield Avenue, Philadelphia 36, Pennsylvania, is recommended for general optical work such as hard coating optical lenses, cleaning and adjusting all types of binoculars, and installation of special reticles in scope sights.

Martin B. Retting, West Hurley, N. Y., has issued a new 146-page catalog, "Guns", listing hundreds of items of interest to shooters and collectors. Contents of the catalog range from modern and antique sporting and military rifles, muskets, pistols, and shotguns; through ammunition, edged weapons, powder flasks, uniforms; to catalogs, books and a few American Indian relics.

BOOK REVIEWS

AMERICA'S NUMBER ONE TROPHY

By James H. Bond

James Bond contends that the big-horn sheep is America's prize big-game animal, and names the moose as the second most difficult animal to hunt and attempt to kill. Bond places in third place the elk and the grizzly, a bear which he rates as affording the hunter far greater sport than the Alaskan brown bear.

A man who has hunted extensively in northwestern America, in the Canadian Rockies, the Yukon, and Alaska, Bond gives an answer in a 40-page, 8½ x 11½-inch booklet to the question asked frequently by sportsmen: Which North American game animal is the most difficult to hunt, affording the hunter the greatest sport?

Bond rates each of eight game animals on several points: intelligence exhibited; keenness of senses of sight, smell, and hearing; terrain in which the animal is normally to be found. While the system may appear arbitrary, it is based upon the major considerations of anyone who hunts.

In rating each animal, Bond recounts many hunting experiences to illustrate his points; these give meat and vitality to his estimates, and will spark many hunters into making estimates of their own.

This interesting paper-bound booklet may be obtained from James Bond, 5255 N. E. Cleveland Street, Portland 11, Oregon, for one dollar.—J. A. Harper

EARLY AMERICAN FIREARMS

By Robert Abels

The title of this attractive little booklet is somewhat misleading. Actually the booklet covers in 61 pages a wide panorama of American arms early and recent, with chapters on rifles, pistols, percussion revolvers, derringers, freaks and oddities, and cartridge revolvers. Unusually well illustated, it contains numerous clear half-tones, a front and back cover, and in color seven plates.

The well-informed collector will learn little from this volume. Its extreme brevity, contrasted with the vastness of the topic, precludes mention of many guns and limits comment on those included to little more than a listing. The beginner, however, will find here a survey which will give him a picture of the wide sweep of American arms and an indication of the scope of the subject.—Harold L. Peterson.

(Published in the American Arts Library series by the World Publishing Company, New York, 61 pages. Price $1.00.)

THE ARMS CHEST

GENERAL REQUIREMENTS APPLICABLE TO CLASSIFIED ADVERTISING

1. Rate: 25 cents per word including name and address—minimum charge $3.00. Advertisements *must be accompanied by remittance,* addressed to "The Arms Chest," American Rifleman, made payable to "National Rifle Association"—1600 Rhode Island Ave., Washington 6, D. C. *Insertion will not be made until payment is received.*

2. Closing Date: All advertisements must be received with advance payment by not later than the 1st of the month preceding date of issue. (Example: March 1st for the April issue. Ads received after March 1st and not later than April 1st will be inserted in the May issue.)

3. All Ads Subject to These Conditions: We reserve the right to edit all copy to conform with our standards and to reject or discontinue any advertisement which we consider undesirable.

4. Transactions Based on Good Faith: Deliberate misrepresentation, or violation of the codes of good sportsmanship and good business ethics, will constitute grounds for refusal of advertising, and may result in disbarment from N.R.A. membership.

5. Blind Ads Not Acceptable: Blind ads, with box numbers *only,* will not be accepted. Give your COMPLETE name and address, to insure prompt and certain delivery of all mail or telegraph replies.

NOTE: Postal authorities no longer are required to provide directory service for even first-class mail which does not carry a *complete* local address!

6. How to Count Numerals, Etc.: Groups of figures are counted as one word (example: .30-30, 250-3000, $150.00, $1.50). Abbreviations consisting of initials or single characters are counted as one word (example: W. H. Smith (W. H. counts as one word); H. B., meaning heavy barrel, etc.; W. H. and H. B. are one word) Hyphenated words are counted as two words (example: 20-gauge, pearl-handled, no-slip).

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8. All Articles to Be Properly Described: To avoid misunderstandings the condition of every advertised article should be described in accordance with the following definitions, NEW—not previously sold at retail, in same condition as current factory production; NEW—DISCONTINUED—same as NEW, but discontinued model. The following definitions will apply to all SECOND-HAND articles: PERFECT—in new condition, in every respect; EXCELLENT—new condition, used but little, no noticeable marring of wood or metal, bluing perfect (except at muzzle or sharp edges); VERY GOOD—in perfect working condition, no appreciable wear on working surfaces, no corrosion or pitting, only minor surface dents or scratches; GOOD—in safe working condition, minor wear on working surfaces, no broken parts, no corrosion or pitting that will interfere with proper functioning; FAIR—in safe working condition but well worn, perhaps requiring replacement of minor parts or adjustments which should be indicated in advertisement, no rust but may have corrosion pits which do not render article unsafe or inoperable; POOR—badly worn, perhaps requiring major adjustments or repairs to place in operating condition.

9. WARNING TO PURCHASERS: The publishers *will accept no responsibility* for *any* unsatisfactory transaction involving articles which have not been described in accordance with the foregoing NRA standards. Purchasers or traders should therefore insist that sellers give clear descriptions of all articles, in accordance with these standards—*before* any transactions are consummated. Purchasers should also request shipment by express C.O.D., *with examination privileges;* the purchaser may (and should) then examine the shipment in his local express office—if unsatisfactory the article will then be returned by the express company to the shipper, at the latter's expense.

10(a). The National Firearms Act forbids the sale of the following: (*a.*) Full automatic machine guns. (*b.*) Rifles and shotguns with barrels less than 18 inches in length or 16 inches in the case of a weapon of .22 or smaller caliber. (*c.*) Handguns such as the Mauser or Luger automatic pistols, when such weapons are equipped with detachable butt stocks, except that all of the above may be sold by a Federal licensed dealer who has paid the special tax required by Section 3260, Internal Revenue Code. NOTE:—"Barrel length", as it applies to the above, is determined by the insertion of a cleaning rod from the muzzle until it comes to rest against the face of the closed breech.

(b). In addition, the NRA has adopted a policy of not accepting advertisements covering small pocket handguns, or any handguns having barrel lengths of 2 inches or less, which have no practical value as target, police or military weapons.

11. Fair Trade Laws: Advertising will not be accepted for articles to be sold in violation of Fair Trade laws, after the manufacturer has advised the NRA that such violation exists.

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NAVY OXFORDS, GENUINE U.S. SURplus, finest black calfskin, famous makes, specify size, $7.95. Check or money order. (Add 50¢ for postage and handling.) AR Rudolph's, Atchison, Kansas.

INVENTORS — IF YOU BELIEVE YOU have an invention, we can make a preliminary search on your invention and advise you whether we think it can be patented. Send for copy of our Patent Booklet "How to Protect Your Invention" and "Invention Record" form. No obligation. McMorrow, Berman, and Davidson, Registered Patent Attorneys, 251 B Victor Building, Washington 1, D. C.

SELL ZEISS ASULTUR BINOCULAR TELEscope 110 mm objectives 33 x 52 x 72 power, optically perfect, exterior good $1500. D. Whiting, 621 S. Hope, Los Angeles 17, California.

FOR SALE: PRIMER CATCHERS FOR PAcific tools, patented metal trays. $2.00 postpaid. State model. Frank Foster, Box 983, Clovis, New Mexico.

RUBBER RECOIL BOOTS TO FIT ANY rifle or shotgun. Value $2.50 each, sale 3 for $1.00. Carryall, new, Gov't. Surplus, large canvas roll Carryall with two web straps and handles for Sportsmen, Ball Players, Campers and Travelers, value $12.50. Special $1.95. Jacobs Automatic Safety for Remington Automatic and Winchester Pump Shotguns, Model 12, new, value $7.95, special $4.50. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

ARMS LITERATURE — OLD CATALOGS — Books—Pamphlets. Send for New Bargain List and Information card. Hugh Smiley, Henniker 10, N. H.

FABRIQUE NATIONALE DELUXE RIFLES. The finest in hand fitted and hand finished rifles. For the discriminating shooter who wants the best. "Randall" 100% hand made knives. The world's finest. "Hensoldt" scopes and Roof Prism binoculars. Life Member. Sam Friedman, 782 Pelham Parkway, New York City.

SHOTGUN, PARKER 12 GA. D.H.E. GRADE, 28" Full and Modified Choke Barrels, Beavertail Forend, Automatic Ejectors, full pistol grip stock and ivory bead sights, excellent condition, $325.00. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

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GOV'T. SURPLUS U.S. NAVY TELEscopes, 16 power with focusing precision eye piece and 2¾ objective lens. These instruments are 33" in length and each one comes packed in an oak chest, price $35.00. Original cost about $125.00. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

VARMINT, GAME, BENCH REST TARGETS Crow, Chuck, Squirrel, Rabbit, Turkey, Deer, Bench Rest. 6x9 inch Bond Paper. 25¢ each, any three plus catalogue 19 different $1.00 postpaid. Mail your order, Today. New Trenton, P. O. Box 51, Cincinnati 5, Ohio.

OUTDOORS—HAWAII . . . FIRST SPORTSman's Guide of 100 pages on Fish and Game. $1.00 postpaid. Bert Biehle, 4621 Kahala, Honolulu, Hawaii.

SHOTGUN, 16 GA. WIN. MODEL 21, DOUble Barrell, 28" F & M Choke, Hammerless Automatic Ejectors, fancy walnut stock, $125.00. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

FREE COPY OF AMERICA'S LARGEST Gun list. Published Monthly. Write—Shotgun News, Columbus, Nebraska.

DERRINGERS, POWDER FLASKS, ALL types Long Guns. Wm. M. Locke, 3607 Ault Park Road, Cincinnati 8, Ohio.

BINOCULARS, 7X50 U.S. NAVY SURPLUS with leather case, value $180.00, excellent condition, $85.00. Please note the above described binoculars are one of the finest American glasses manufactured. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

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ELECTRIC PENCIL: ENGRAVES ALL METals, $1.25 postpaid. Beyer Mfg., 10511-Z Springfield, Chicago 43.

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500 ANTIQUE ARMS OF ALL TYPES. Please advise your wants. Wm. M. Locke, 3607 Ault Park Road, Cincinnati 8, Ohio.

U. S. ARMY M3, 6 X 30 PRISM BINOCUlars, coated, complete with case and straps, brand new, $59.50. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

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LARGE COLLECTION OF AMERICAN AND European antique arms. Send 25¢ in coin for our 18th catalog. We buy whole collections or single pieces. Fair prices paid. Kimball Arms Company, Woburn, Mass.

ANTIQUE FIREARMS, ACCESSORIES AND parts. All illustrated lists for a year, $1.00. Weisz, 100 South Uhle St., Arlington, Virginia.

"ARMS AND THE MAN" AND "AMERICAN Rifleman," April 1922 to December 1950. $60.00. Several missing or damaged copies. Life Member. Wm. R. McNair, Lakeport, California.

He's well pleased!

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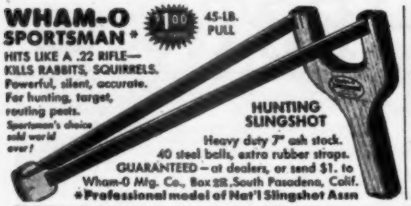
This is just one of the many every-issue advertisers in the "Arms Chest" who has found thru careful testing that these columns are outstandingly productive—and profitable!

Final closing date for the April issue is March 1st; full instructions above.



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45-LB. PULL

HITS LIKE A .22 RIFLE—KILLS RABBITS, SQUIRRELS.
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For hunting, target, routing pests.
Sportsman's choice sold world over!

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Heavy duty 7" ash stock.
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GUARANTEED—at dealers, or send $1. to
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*Professional model of Nat'l Slingshot Assn

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EL PASO, TEXAS
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POWDER DISPENSER

This tool is designed to be used with any powder measure using a ½" or 9/16" drop tube, also Hollywood (specify which). To use, adjust measure to slightly under the required charge. Throw charge with powder measure and add required weight by turning knurled wheel on side of dispenser. This adds powder one kernel at a time until exact charge is in pan. This tool will deliver 4 to 5 perfectly weighed charges in one minute. Every shooter can have accurately weighed powder charges speedily and easily with this new powder dispenser.

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New 1½" objective SPOT SHOT Scope, 25X, Special for Bench-Rest Shooting ---------- $70.00
1½" objective SPOT SHOT Scope, 10X, 12X, 15X or 20X ---------- $70.00
1¼" objective SPOT SHOT Scope, 10X, 12X, 15X or 20X ---------- $55.00
Complete with mounts, dust caps, recoil spring (less bases)
⅞" objective SPOT SHOT Scope, 8X and 10X ---------- $45.00
Complete with mounts and recoil springs (less bases)

All scopes guaranteed against damage from recoil and can be used with any caliber rifle. These new scopes are precision made, have COATED OPTICS, NEW ¼ min. click mounts, and sliding-sleeve objective focusing adjustment. These scopes are made to fill a long felt need for a medium priced target scope that will really fill the bill. The "SPOT-SHOT" scope, with our NEW mounts, will give fine results in either target shooting or vermin shooting. Our new mounts have several mechanical improvements and finer finish. Write for our new literature.

R. A. LITSCHERT Dept. A **WINCHESTER, IND.**

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There's a Down, Kapok or Wool-filled Alaska Sleeping Bag to fit every need, weather condition . . . and pocketbook! Built for rough use, these bags are weather-proof, water-repellent, warm. First choice of western timber cruisers, forest rangers, hunters, outdoorsmen since 1915. Lowest factory prices. Send for New Catalog describing 22 Alaska Sleeping Bag bargains, including Twin (pair model) Bags, Extra Large Bags (for big men). Also Air Mattresses, Duffle Bags, Sleeping Robes, etc. Wool Bags as low as $19.98. Down and Feather Bags as low as $23.98. Kapok Bags from $11.49. All merchandise guaranteed to satisfy or your money back.

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WINCHESTER 52, VERY GOOD, STEPHENS scope, Litschert attachment, $90.00. O. E. Thornburg, Paonia, Colorado.

GERMAN 16 GAUGE 8x57 OVER UNDER, Circassian walnut stocks, Krupp Taufstahl bbls. Single set trigger on rifle bbl. Buckhorn trigger guard. Fully engraved, new condition, a masterpiece by Herm Weihrauch. Zella Mehlis. $650.00. V. E. Swift, Vinton, Iowa.

HORSEHIDE SHEEPLINED COAT, BLACK, with detachable collar, size 44, length 36. Right pocket leather lined. Very good. $22.50. Stanley A. Boyer, Bradenton, Florida.

ARGUS PRISMATIC 20 POWER OBSERVATION Telescopes, surplus stock, excellent condition with coated optics, $59.50. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

S. A. COLT PISTOLS. FRONTIER AND Bisleys, new blue and chrome finish. All calibers. Price $60.00 and up. J. E. Libby, Box 719, Eagle Pass, Texas.

K-HORNET 23-D, VERY GOOD 29S WEAVER 6x Litschert attachment, loading tools. Primers, bullets, reloads, empty cases, $95.00. Mason Jones, 2343 N.E. 13 Ave., Portland, Oregon.

FORMULA 44-40 — INSTANT, PENETRATING gun bluer—Sure cure for "tired" looking guns. Doesn't harm old blue, one easy application. Recommended by all who use it, results guaranteed. $1.00 per bottle. Numrich Arms Company, Dept. 1H, Mamaroneck, New York.

EXCELLENT SPRINGFIELD 03. RE-BLUED, Herter stock, Buehler safety, mount. K-6 scope, $145.00. James A. Scott, Pomeroy, Washington.

NEW-USED: RIFLES, PISTOLS, SCOPES, Binoculars, Typewriters, Ammunition. Benensohn's, 124 Water Street, Binghamton, New York.

HANDSIGHTING LEVELS, IMPROVED, new model, used for grading land, contouring and laying out fences, piers, roads and gardens, price $2.00 postpaid. Public Sport Shops, 11 S. 16th Street, Philadelphia 2, Pa.

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AMERICAN RIFLEMAN APRIL 1936, TO 1951, Sept. 1938 missing, $25.00. L. R. Meredith, 581 W. Glendale, Bedford, Ohio.

OUR LIST OF MODERN ARMS WILL BE sent on receipt of three cent stamp. Kimball Arms Company, Woburn, Mass.

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Send for free accessories list
JAMES E. SERVEN · Santa Ana, Calif.

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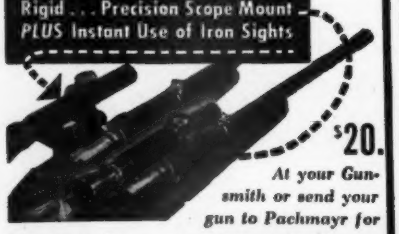

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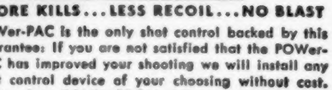

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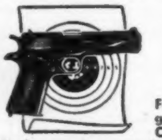

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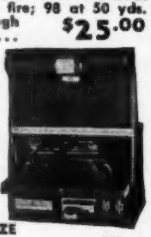

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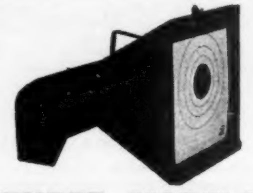

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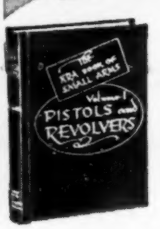

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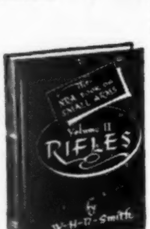

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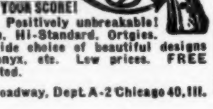

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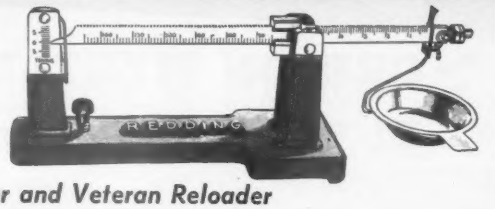

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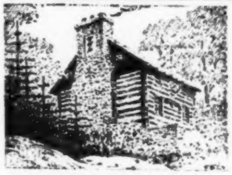

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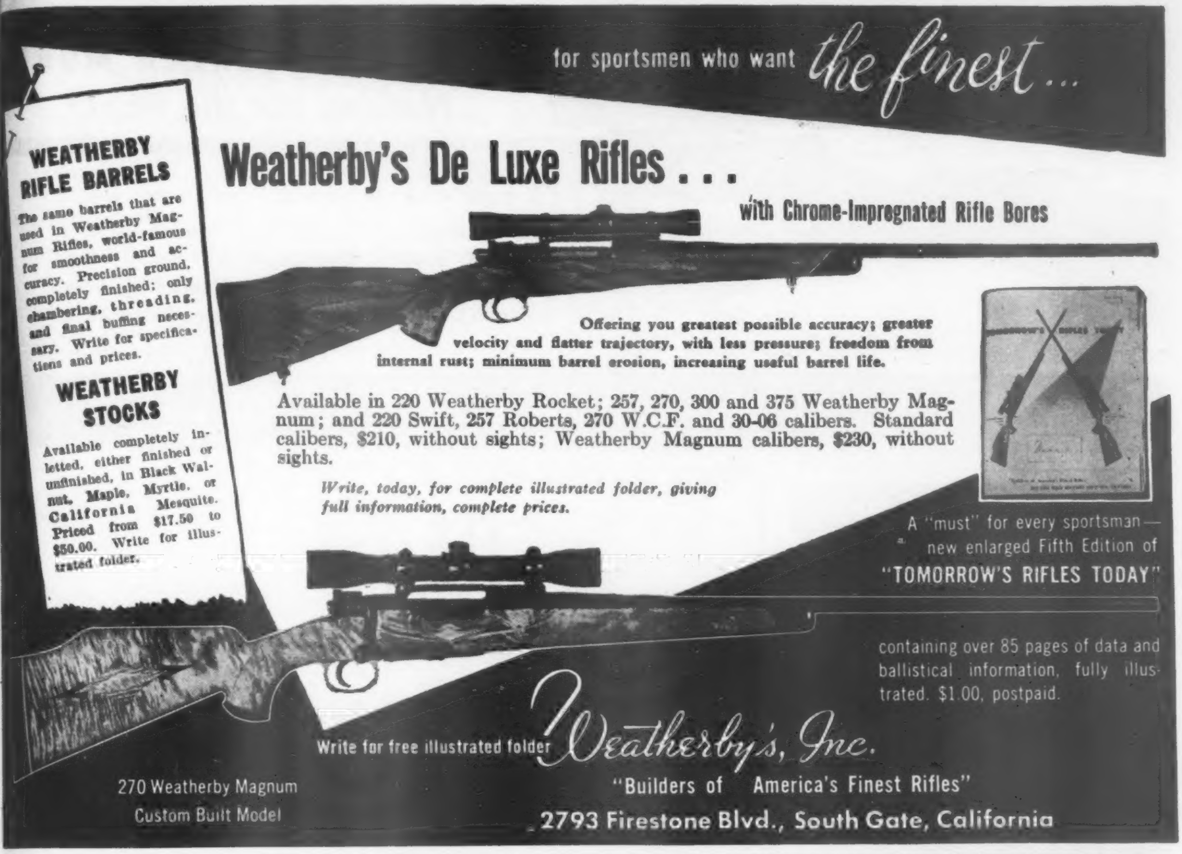

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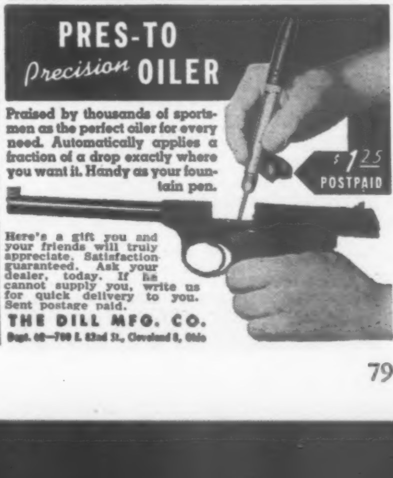

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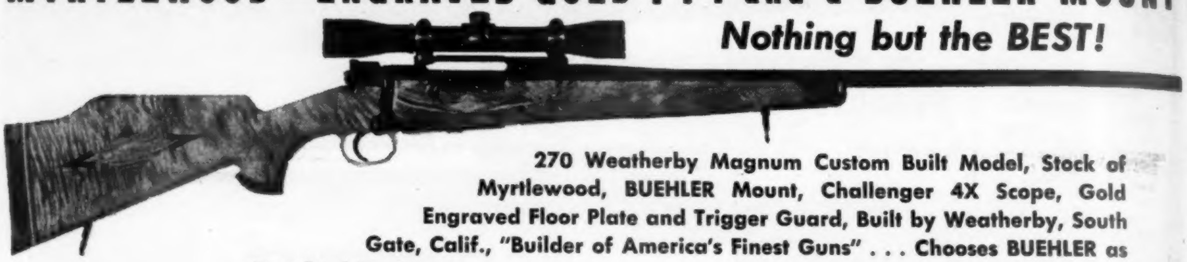

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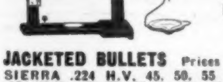

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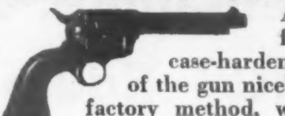

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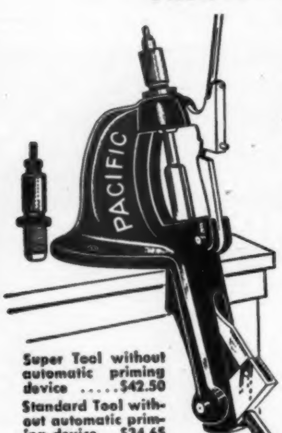

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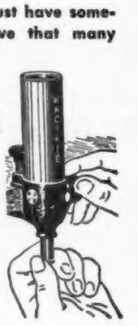

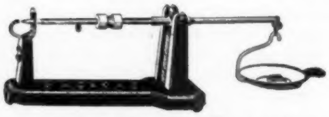

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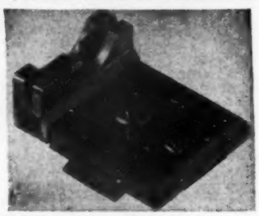

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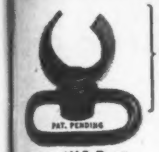

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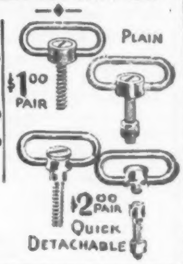

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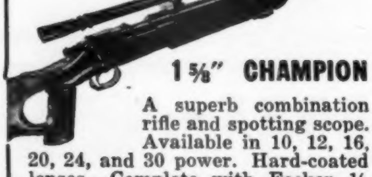

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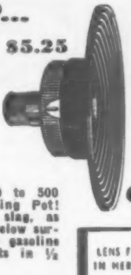

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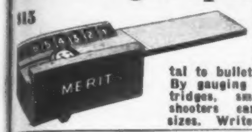

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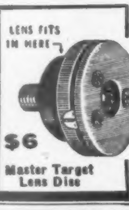

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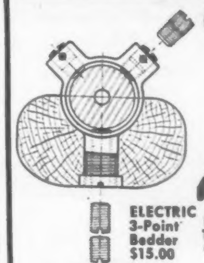

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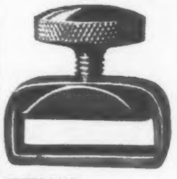

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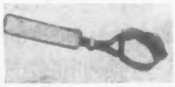

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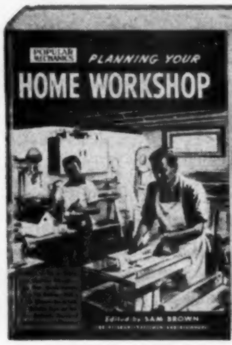

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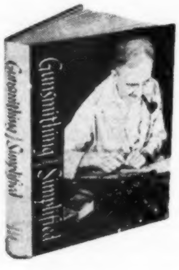

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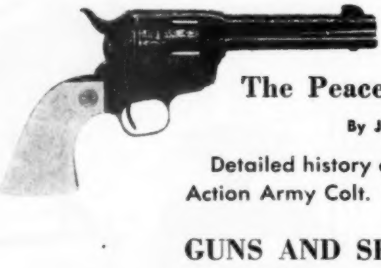

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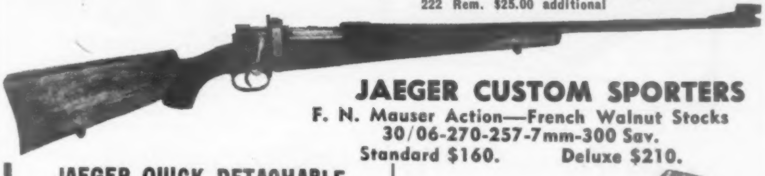

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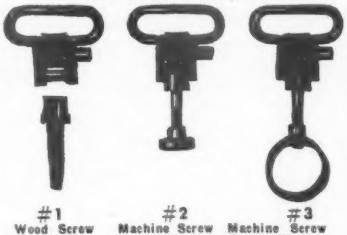

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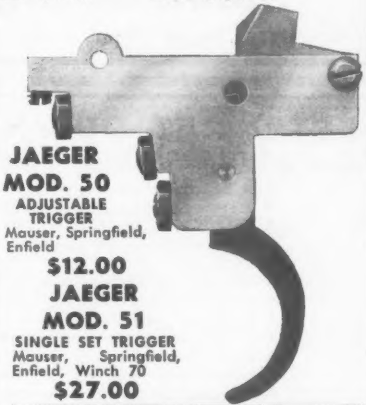

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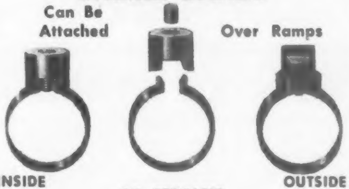

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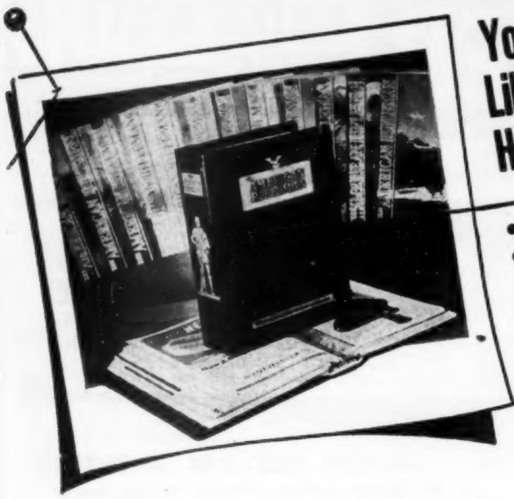

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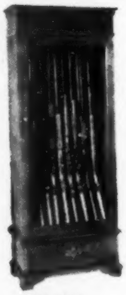

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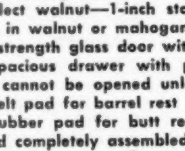

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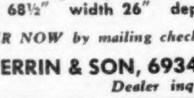

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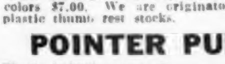

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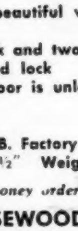

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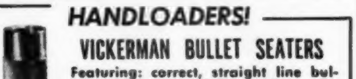

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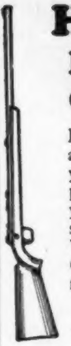

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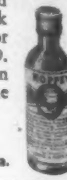

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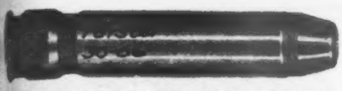

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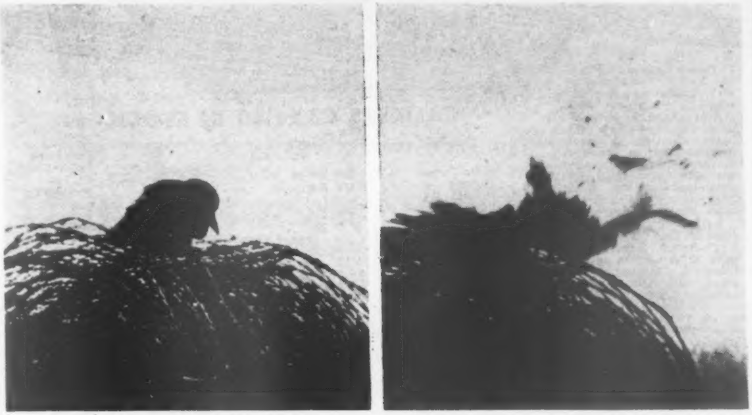

These two pictures are enlarged single exposure prints from a 16mm movie film taken with high speed camera and telephoto lens. This crow, sitting on a roll of wire, waited just too long. He was hit by a 50 grain .22 Hornady bullet shot from a Lindahl chucker at about 3400 F.S.M.V.

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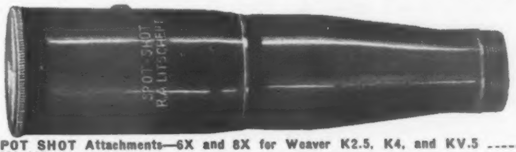

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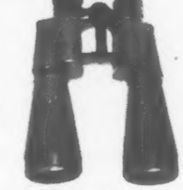

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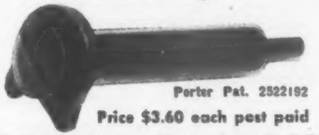

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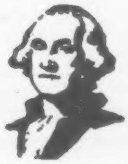

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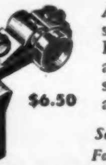

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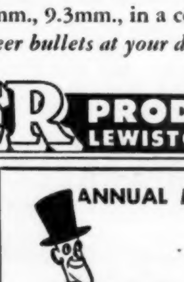

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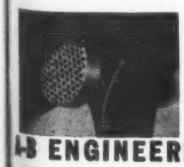

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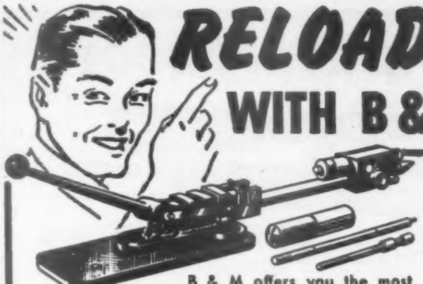

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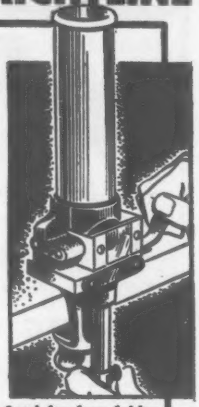

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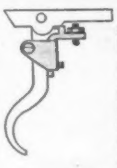

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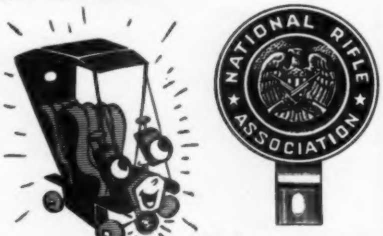

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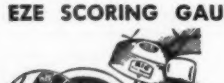

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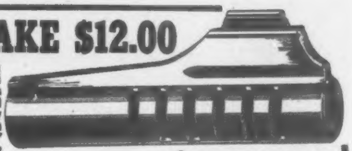

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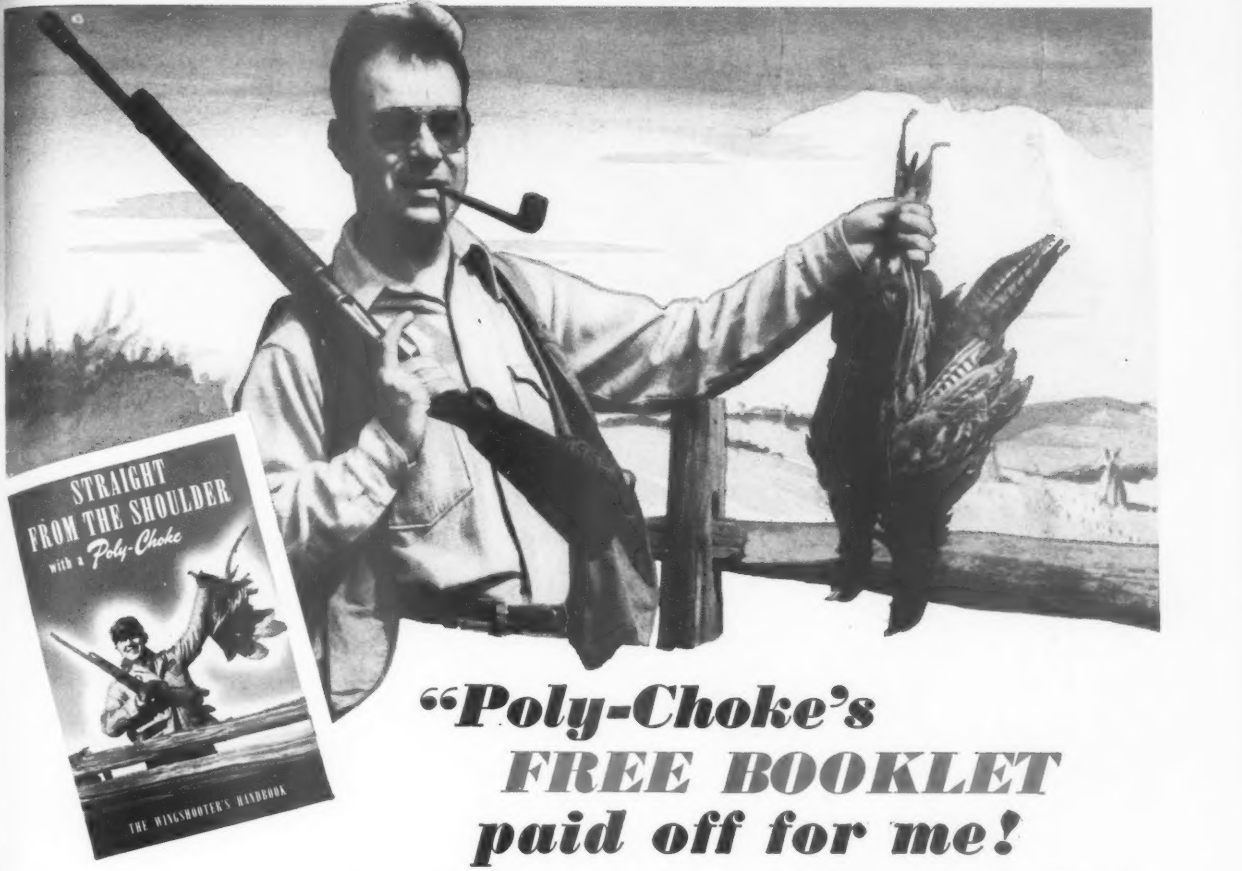

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